microscope are given in text-books of mineralogy, the present account should prove particularly useful to biochemists and pharmacologists, for the examples used are substances with which they are accustomed to deal. A special section, by A. Mayrhofer, deals with the subject of immersion fluids for estimation of refractive indices.

Altogether a most useful monograph.

Arthritis and Rheumatic Disease

By MAURICE F. LAUTMAN, M.D., Director of the Department for the Study of Arthritis, Levi Memorial Hospital, Hot Springs, Arkansas. London: McGraw Hill Publishing Co., Ltd. 1936. Pp. 177. 10s.

THIS book is designed to supply the patient rather than his doctor with a clear account of what is known of arthritis and rheumatic disease, and succeeds admirably in its purpose. The instruction of the general public is regarded in America as an important factor in the campaign against these diseases which are becoming more common and levy a serious toll upon the working capacity of the community. The American Committee for the Control of Rheumatism which has already done important work in this direction and Dr. Lautman's book will greatly assist their efforts. Nothing of importance appears to have escaped notice, and the account of the various forms of arthritis and fibrositis is remarkably clear and complete. The author described the causes so far as they are known, the pre-arthritic state, the symptoms, and gives valuable advice upon the general principles of treatment apart from drugs. Possibly his views upon diet may not meet with universal approval, but they are sane and practical on the whole. As Dr. Morris Fishbein says in his introduction, "Knowledge such as he provides in this book will save thousands of dollars for those who are constantly seeking quick cures," a statement with which one cannot disagree. Whether it will bring them encouragement, or give them positive help in their struggle against disease is a question on which there may be two opinions. At any rate it will be found well worth careful study by doctors for the sound practical advice it supplies upon the management of diseases which form so large a proportion of the cases treated in general practice.

The Intruder: An Unfinished Self-Portrait

By KENNETH WALKER. London: Lovat Dickson Ltd. 1936. Pp. 274. 9s.

IN this absorbing narrative the author sets out how he gradually came to the conviction that his life runs him and that he does not run his life. He has no patience with current psychology and its puppets, the ego, the super-ego, and the id: he prefers to interpret his own behaviour in terms of creatures of his own whom he calls Black Hawk (the Indian brave), Selous (the hunter), Knight Paton (a combination of a Crusader and the Scottish medical missionary), and the Personage (a figure of greatness). These four he has traced in the tangled skein of his experience, and they accompany him and play their several parts in the whole story. They are patterns into which he has organised his experience—to use the language of Mr. A. W. Wolters in a recent address to the British Association. And there is yet another creature whom the author describes as the Intruder, at whose appearance the other actors slink off into the wings. And there is also the author of the book, who writes a preface telling how he came to illustrate certain fundamental truths in his own person. "I am my own rabbit," as he puts it. But whereas Mr. Wolters spoke of a person forming his own patterns of experience the author's life has been at the mercy of his four characters; he has not lived, he has been lived. Whoever lived it the author's life was so full of a number of things that a time was bound to come when it would feel empty if the tempo remained the same. After touring Iceland on a pony with the French pretender, descending the Zinal Rothorn by a new route in an electric storm, meeting a lion in the Rift valley, being entertained by a Maharajah, crossing the Parana in a native canoe, and only just failing to get a Brazilian degree, even the war had little to offer in variety except the risk of a court martial for declining the O.B.E. Success as a consulting surgeon did nothing to resolve the doubts and problems that stirred in his mind and the narrative ends with the second of two moments of self-revelation which both occurred near the same spot on the South Downs. The first was when, a little boy sitting in a victoria returning with his parents from an afternoon's outing, he had an acute feeling of existence and was frightened by the new sense of isolation. On the second occasion he saw the thread of his life twisting through time and space and at long last returning to the point of its departure. Thus slowly and painfully he came to understand that there is a knowledge, universal and timeless, handed down by word of mouth from teacher to disciple, which awaits those who seek it. Differing from the inert learning of scholars this knowledge has power to change him who possesses it. Or so at any rate thinks one of the characters in the book—perhaps this time the author himself.

Administrative Science for Hospitals and Institutions

By A. MILSOM. Published by the author and obtainable from the Book Department, 104, Foord-road, Folkestone, Kent. Pp. 550. 17s. 6d.

MR. MILSOM, who describes himself on the title-page as (amongst other things) master of London, Bristol, and other provincial local government establishments, has put together under one cover a series of guides to the various activities and responsibilities which fall on the shoulders of the modern hospital administrator. The author shows a remarkable grasp of detail, without losing perspective. Whether he is talking on the wise management of a staff of employees, the destruction of insect pests, catering, contract buying, accountancy, laundry, works departments, the management of a farm and garden, including the proper care of a farrowing sow, or the inauguration of an occupational therapy department, his interest never flags and he does not allow that of his readers to flag either. He assembles facts and deduces opinions based on them and on the views of accepted authorities.

Much of his book is concerned with hospital management under the control of a supervising authority, such as a county council, but it contains information of value to those responsible for the administration of any hospital—the governing body, the superintendent or secretary, the chief accountant, and the matron. The book is arranged in such a way that each department is an index to itself. The separate sections are interleaved with advertisements, and there is also an index to advertisers. It is a book which all those concerned with hospital management would do well to have within reach.

THE LANCET

LONDON: SATURDAY, NOVEMBER 7, 1936

THE ÆTIOLOGY OF ACUTE RHEUMATISM

THE study of rheumatic fever from the ætiological standpoint has passed through several phases, some of which need no longer be considered. Streptococci of some sort have always figured in the picture, but it is now abundantly clear that, in so far as any streptococcus is concerned in causing this disease, that organism is *Streptococcus pyogenes*. This confident opinion of course rests on foundations other than the constant presence of the organism in the throat during, or more often before, an attack; the principal evidence for it has been the demonstration that specific antibodies are developed during the attack. The development of antihæmolysin was first observed by E. W. TODD; the antibody now known as antistreptolysin was demonstrated by GEOFFREY HADFIELD; and each of these observations has since been amply confirmed. The two substances can both be titrated with some accuracy, and the quantity in which they appear in the serum of rheumatic fever cases is unequivocal.

A third observation of the same nature was reported last year by BERNARD SCHLESINGER, A. G. SIGNY, and W. W. PAYNE,[1] who found that precipitins acting on extracts of *S. pyogenes* were formed in the blood of rheumatic patients after attacks of tonsillitis, their development coinciding with the occurrence of a rheumatic relapse. These workers were however not satisfied that the changes in which streptococci so clearly participate are wholly accountable for the disease, and with the help of C. RUSSELL AMIES, SCHLESINGER, and SIGNY performed experiments in which it was claimed[2] that a virus was demonstrated. Centrifugation of pericardial fluid furnished a deposit containing minute particles which were agglutinated by the serum of patients recovering from attacks of rheumatic fever, and not by normal serum, or indeed by rheumatic subjects in a quiescent stage. This was a bold claim, and it has not yet been confirmed. No recognised virus has hitherto been first brought to light by direct microscopic observation, or accepted on serological grounds alone without the conclusive evidence afforded by transmission of the disease. Yet only those experienced in ultramicroscopy are really qualified to criticise these findings, at least as far as they concern matters of fact rather than of interpretation.

Meanwhile Dr. A. F. COBURN has returned to the attack on behalf of the claims of the streptococcus, and in our last issue he reported the results of serological studies in rheumatic cases which differ from their predecessors in their greater accuracy and detail. In a necessarily small series of cases he has repeatedly estimated the quantity of several antibodies in the blood at intervals after an attack of streptococcal pharyngitis in both rheumatic and non-rheumatic subjects, with the effect of showing that the type of response differs in these two types of case. The principal difference is that whereas in uncomplicated recovery antistreptolysin is produced rapidly, in the rheumatic the titre of this antibody rises slowly but steadily, and continues to rise after the appearance of an attack of acute rheumatism, this itself having occurred a fortnight after the original throat infection. This evidence very strongly suggests that rheumatic fever is an abnormal and exceptional type of response to streptococcal infection; it certainly proves, as COBURN expresses it, that the rheumatic subject "handles the products of hæmolytic streptococcus in a peculiar way." Will the intensive study of a known micro-organism and of the body's response to infection by it lay bare the ultimate secrets of this disease, or is there a missing factor, perhaps to be identified with the virus already described? These two beliefs and methods of approach—the exploitation of the known and the exploration of the unknown—are so typical of modern work in many other directions that final judgment on either side would carry with it implications of wide interest.

"IDIOPATHIC" EPILEPSY

Is there an idiopathic epilepsy? Or should we expunge this term from our dictionaries and regard all epilepsies as symptomatic? Certainly many French authors regard idiopathic epilepsy as dead and buried. They are willing to speak of toxic epilepsy and psychogenic epilepsy, but in their view most epilepsies are due to local organic brain disease, usually of an inflammatory nature. At the other end of the scale stand those who emphasise the existence of an inherited tendency to convulsions—a tendency that makes some people especially liable to develop fits if their brain is damaged, for example, by cerebral trauma, meningo-encephalitis, or tumour. Nobody knows the nature of this inheritance of a lowered threshold for convulsions; but obviously the stronger the inheritance the smaller will be the cerebral disturbance necessary to determine fits. If inheritance strength is measured in terms of familial incidence, there is a certain amount of evidence to support this proposition. And if the proposition is true, the term "idiopathic epilepsy," so far from disappearing, has its scope widened to include much of what we now regard as symptomatic epilepsy.

The search for abnormal conditions in the brain that might account for fits is an old one. For many years sclerosis of the cornea ammonis held a prominent place, but whether as a cause or result of fits was disputed. Dr. FREMONT BATEMAN of Cincinnati now comes forward with a record of changes in the brains of 176 out of 178 patients

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[1] THE LANCET, 1935, i., 1090.

[2] Ibid., p. 1145.

NTRE FOR POST-GRADUATE NG AND RESEARCH AT OXFORD

LORD NUFFIELD'S OFFER

llowing letter, dated Oct. 10th, 1936, has ressed to the Vice-Chancellor of the Univer- xford by Lord Nuffield.

progress of medical science and the con- under which medical practice is carried on ig been, as you may be aware, among my terests; and I have been privileged to be associated with the development of more hospital and to have had many opportunities assing problems of medical research and with prominent members of the profession.

alize that progress in medical science is reach- age where it is desirable for those who work field of research to undergo a period of post- te training in modern methods of investiga- keep in close touch with developments in the s ancillary to medicine, and to pursue their es unhampered by the cares of private practice routine teaching.

regard to medical practice, I welcome the sing tendency to regard all health services, vative, preventative, and curative, not as te entities but as constituent parts of a com- effort to promote and maintain the good health community. It is specially gratifying to me rn that attempts to give effect to this ideal are made in Oxford.

hence it is an easy step to the conception that presence of a post-graduate medical school in a ersity town in which all the scientific depart- s are within easy reach of the hospitals and in h coördination of health services will, I hope, oon established, would improve the position and facilities of those already engaged in clinical work ither institutional or general practice.

Sir Farquhar Buzzard in his presidential address he British Medical Association on July 21st put words what had been going through my mind n he spoke of an 'ambitious dream' of developing h a medical school in Oxford and thus filling the conspicuous gap in the system of medical services ich he foresaw. It would be a great pleasure to to help in giving reality to this dream in a city ere there are already hospitals with which I have satisfaction of being closely associated, and in a iversity of which I am proud to be an honorary iduate, and where, though on a small scale, there already an institute of medical research.

"The basis of my proposal is that the University, ering as it does an environment more favourable research than in a big training hospital, should den the scope of its medical school and of the uffield Institute for Medical Research for the irpose I have already indicated. This would involve e establishment of senior posts to be held by men women not subject to the distractions of private actice, under whose direction there would be a dy of salaried clinical assistants and house officers lected for their promise of aptitude for the scientific vestigation, under institutional conditions, of medical roblems. These posts would be open to any qualified actitioner, whether a graduate of the University Oxford or not, and they would also clearly give cilities to those of them who are desirous of roceeding to higher degrees.

"I do not exclude the possibility or the desira- lity, when this post-graduate school has been established, of including within its scope the clinical training of a limited number of Oxford medical students: this would be an extension of the clinical training already undertaken by the honorary staff of the Radcliffe Infirmary.

"While it is my primary object to promote the progress of medical knowledge, I should not, at a time when there is so much suffering for which relief cannot be obtained through mere lack of accommodation, be willing to concentrate such help as I can give on that object were I not satisfied that my scheme must inevitably increase and facilitate the clinical investigation and treatment of patients and lead to the provision of more ample hospital accommodation in the health centre with which it is associated. For this reason I am confident that the University will be able to secure the ready coöperation of the hospitals in the neighbourhood, without which the fulfilment of the scheme would be impossible.

"It is not for me to prescribe the details of a scheme which, however it may be formulated at the start, I realize must be capable of modification from time to time in the light of experience. But having said so much in regard to the fundamental conditions of my offer, I will endeavour to outline the sort of organization which seems to me likely to be effective.

"The University would as a development of its medical school in the first instance establish clinical departments of medicine, of surgery, and of obstetrics combined with gynæcology—the three principal branches of clinical medicine generally recognized by the medical profession—a department of anæsthetics, and such other departments as from time to time may seem desirable. Each of these clinical departments would be under the direction of a professor in the University, whose assistants at the early stage would be chosen according to the availability at the time of specially qualified men and women, though later the field of choice would be widened by workers whose training in the school and in the departments of the ancillary sciences would specially qualify them to pursue selected and related paths of inquiry in it. The professors would naturally look to the honorary staff of the hospitals for their coöperation in giving them access to beds and the use of relative hospital services in the hospitals associated with the scheme. It would from their respective points of view, be to the interest of the school and of the hospitals equally that the facilities already provided for the institutional treatment of the sick should be progressively improved. It would be understood that contributions could be made from the fund which I propose to create to any special expenses attendant upon the development of the school which the hospitals were required to incur. The position of the honorary staffs of the hospitals would not be altered, although the members would, I have no doubt, be quite willing to entrust to the professors such administrative authority over the services of their wards and laboratories as would be necessary for facilitating their own clinical work and for coördinating the training of clinical assistants and house officers.

"In order to avoid the diversion of energy from research which the claims of private practice would involve (no man specially qualified to relieve suffering can be expected to refuse to relieve it if he has only his own inclinations to study), it seems advisable that the professors should be full-time university officers. But in medicine the enhancement of knowledge and the treatment of the sick must go hand in hand, and it would be reasonable, therefore, to permit them to augment the clinical material available for them by admitting to pay-beds in the hospital a limited number of patients who can afford to pay fees for medical or surgical treatment.

"To promote a scheme on the lines laid down and illustrated respectively above, I am willing to give to the University in trust sums which will amount, in the aggregate, to approximately one and a quarter million pounds. It is an absolute condition of this offer—

"(i) That a body of trustees be appointed whose duties shall be—

(*a*) to receive annual accounts of the income received by the trust fund and expenditure defrayed from it; together with an annual report on the work of the school, and to report to the University upon such accounts and report;

(*b*) to receive annual estimates of income and expenditure, and to determine whether developments proposed to be financed out of the fund are consistent with the terms of the trust.

"(ii) That whatever body is entrusted by the University with the execution of the scheme should include persons representing the hospitals associated with the scheme, in such proportion as will, so far as human fallibility will permit, secure harmonious coöperation.

"I should wish to have the right during my lifetime to nominate a trustee who will be the chairman of the trustees and also three other trustees, and on my death this right of nomination to pass to the chancellor of the University. I should further wish the vice-chancellor to be a trustee *ex officio*, and the University to appoint two other trustees, and the governing bodies of the Radcliffe Infirmary and of the Wingfield-Morris Orthopædic Hospital (the two Oxford hospitals with which I am closely associated) to appoint two trustees and one respectively.

"An appropriate deed of covenant and trust would be drawn up to give effect to this offer, and such deeds would provide that the power of investment as to any moneys which may be invested under the trust is not to be limited to trustee securities as defined by the Trustee Act, 1925, but it is to include all securities in which the University is empowered by its own statutes to invest its funds.

"Realizing that this scheme will make demands upon the other scientific departments of the University, I am prepared also to contribute the sum of £100,000 to the appeal which I understand the University will be making shortly, and of which the object is to secure that the University shall not be prevented by straitened finances from providing essential services."

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.—At a quarterly court of directors held on Oct. 7th, Mr. V. Warren Low, president, in the chair, 9 new members were elected, and 3 deaths were reported. In each case the widow applied for relief; one being 77 years of age was voted a yearly grant of £75, the two others being under 65 years of age, were voted a yearly grant of £60 each. The death was also reported of one of the widows in receipt of grants. Her husband died in June, 1922, after having become a life member in July, 1921, by payment of 25 guineas. His widow and two orphans came on the funds in 1922 and received in relief a total of £1390. The sum of £630 was voted as a Christmas present, to be paid in December: each widow to receive £10 and each orphan £5. The directors desire to bring to the notice of young medical men resident within the 20 mile radius of Charing Cross, especially if newly married, the desirability of joining a society of which the advantages have now been proved for nearly 150 years. The annual subscription for a member under 35 at the time of his election is two guineas. Particulars from the secretary at the offices of the society, 11, Chandos-st., W.1.

ANTI-GAS PRECAUTIONS

THE Air Raid Precautions Department of the Home Office has been in conference with the deans of the medical schools, the British Medical Association, and the College of Nursing about measures which might be taken to provide facilities for the medical and nursing professions to acquire a knowledge of anti-gas precautions. It is understood that the authorities concerned have promised the assistance of their machinery in carrying out this work, and that general agreement has been reached on the methods to be adopted. The Air Raid Precautions Department has now selected the following ten medical men who will be available to assist the medical profession in various centres.

Centre.		*Instructors*.
London	..	Colonel G. S. Wallace, M.B., and Dr. L. Haden Guest.
Cambridge	..	Major-General H. P. W. Barrow, M.R.C.S.
Salisbury	..	Dr. E. M. Pearse.
Liverpool	..	Dr. L. T. Challenor.
Leeds ..	..	Dr. K. H. Beverley.
Birmingham	..	Surgeon-Captain P. F. Woodruff-Minett, M.R.C.S.
Newcastle-upon-Tyne.		Dr. K. S. Dickinson.
Glasgow	..	Dr. G. L. Pillans.
Edinburgh	..	Dr. J. N. Hay.

Arrangements have been made for the selected doctors to be specially trained at the Home Office civilian anti-gas school, and they are now ready to take up their duties. It is proposed that their services should be available to all branches of the medical profession, including the practising doctor, the medical student, and the nurse. The technical equipment necessary for the proper provision of practical instruction is being provided by the Government and the services of the selected doctors will be available free. The times of classes will be arranged, so far as possible, to meet the convenience of those concerned.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 3RD, 1936

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0; scarlet fever, 1804; diphtheria, 1227; enteric fever, 72; pneumonia (primary or influenzal), 392; puerperal fever, 40; puerperal pyrexia, 117; cerebro-spinal fever, 11; acute poliomyelitis, 21; encephalitis lethargica, 3; dysentery, 15; ophthalmia neonatorum, 86. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Oct. 9th was 2723, which included: Scarlet fever, 959; diphtheria, 826; measles, [illegible]9; whooping-cough, 344;
puerperal f [illegible]
lethargica, 2 [illegible]
there were 8 [illegible]

Deaths.—In 122 great towns, including London, there was no death from small-pox, 10 (2) from enteric fever, 2 (1) from measles, 3 (0) from scarlet fever, 15 (1) from whooping-cough, 35 (3) from diphtheria, 61 (17) from diarrhœa and enteritis under two years, and 11 (1) from influenza. The figures in parentheses are those for London itself.

The deaths from enteric fever outside London occurred at Bournemouth and Poole, each 2, Barking, Southgate, Birmingham and Stoke-on-Trent, each 1, *Poole 2. Deaths from diphtheria were reported from 18 great towns, Manchester 6, H*[illegible] *Liverpool and Birmingham each 3.*

The number of stillbirths notified during the week was 269 (corresponding to a rate of 43 per 1000 total births), *including* 41 in London.

MEDICAL NEWS

Royal College of Surgeons of England

At a meeting of the council held on Oct. 8th, with Sir Cuthbert Wallace, the president, in the chair, Mr. J. A. Ward, of Wigan Technical College, was admitted as the seventh Macloghlin scholar. Mr. E. P. Stibbe, of the London Hospital, was elected to the board of examiners in anatomy and physiology for the primary fellowship examination. The president reported the award of a Sir Gilbert Blane gold medal to Surgeon Lieut.-Commander J. M. Sloane, R.N., and diplomas of fellowship were awarded to Harold Francis Mowat (Toronto) and John Eber Spalding (Guy's). Stanley Mitchell Sangster, of Epsom College, was elected the forty-fourth Jenks scholar.

Six general surgical registrarships at the Kasr-el-Aini Hospital, Cairo, were recognised for the surgical posts required by the regulations for the diploma of fellow.

A meeting of fellows and members of the College will be held on Thursday, Nov. 19th, at 4 P.M., when a report from the council will be laid before the meeting. Copies of the agenda may be obtained from the secretary after Nov. 11th.

University of Sheffield

The university has accepted Sir Arthur Hall's offer of the portrait of himself, painted by Mr. Ernest Moore, which has been presented to him by old students, colleagues, and friends.

Dr. Robert Platt has been appointed honorary lecturer in medicine, Prof. A. E. Naish, medical officer to the training department, and Prof. J. Glaister, external examiner in forensic medicine.

University of Liverpool

At recent examinations the following candidates were successful:—

D.P.H.

J. D. Bryan, Nancy L. Lewis, and G. McLoughlin.

University of Dublin

At recent examinations at the School of Physic, Trinity College, the following candidates were successful:—

FINAL MEDICAL EXAMINATION FOR M.B., B.CHIR.

Part I. (Therapeutics, Pathology, &c.).—*T. L. Lawson, *L. S. Levinson, *Simon Sevitt, G. N. MacFarlane, F. G. Millar, I. G. Nixon, D. K. Stewart, L. I. Warnock, Muriel Elliott, E. W. Parke, R. E. Taylor, H. R. T. Devlin, M. F. Graham, J. R. Mahon, R. C. H. Cooke, E. W. R. Hackett, Sylvia M. FitzGerald, L. A. S. Edmondson, Tom Shier, Elizabeth M. Rees, Lily H. Bamber, F. P. O'Sullivan, R. J. Grove-White, and F. T. Williams.

DIPLOMA IN GYNÆCOLOGY AND OBSTETRICS

M. W. U. Alwi.

* Passed on high marks.

Royal Institution of Great Britain

On Nov. 27th, at 9 P.M., Dr. Edward Mellanby, F.R.S., ecretary of the Medical Research Council, will give a Friday evening discourse to the institution on recent advances in the treatment of disease. On Tuesdays, Dec. 1st, 8th, and 15th, at 5.15 P.M., Prof. Mellanby will also give a course of lectures on chemical messengers of the body in health and disease. The Christmas course of six lectures for children will be given by Major G. I. Taylor, F.R.S., on ships. The address of the Institution is 21, Albemarle-street, W.1.

Royal Academy of Medicine in Ireland

Dr. A. R. Parsons has been elected president of the Academy for 1936–37 with Dr. T. P. C. Kirkpatrick and Dr. William Doolin secretary for foreign correspondence. The general council consists of Dr. Gibbon FitzGibbon, Dr. E. T. Freeman, Dr. W. G. Harvey, Dr. W. R. O'Farrell, Dr. J. P. Shanley, and Mr. R. A. Stoney. The sectional presidents are: medicine, Dr. Freeman; surgery, Mr. A. A. McConnell; obstetrics, Dr. J. F. Cunningham; pathology, Dr. G. C. Dockeray; anatomy and physiology, Dr. W. J. E. Jessop; State medicine, Dr. J. A. Harbison; laryngology and otology, Mr. T. O. Graham.

Dr. Parsons, the new president of the Academy, is senior visiting physician to the Royal City of Dublin Hospital. He has been a fellow since 1893, and has held office as president of the sections of medicine and pathology.

University of Bristol

The twenty-fifth Edward Long Fox lecture will be given in the Wills physics building of the University at 8.30 P.M. on Tuesday next, Oct. 20th. The lecturer will be Dr. A. Bulleid, F.S.A., and the subject Somerset Lake Villages.

Society of Medical Officers of Health

A meeting of this society will be held on Friday, Oct. 30th, at 1, Thornhaugh-street, London, W.C., at 5 P.M., when Dr. Ernest Ward will be installed as president and will deliver an address on tuberculosis.

Chelsea Clinical Society

The annual dinner of this society will be held at the Hotel Rembrandt, Thurloe-place, S.W., on Tuesday, Oct. 20th, at 8 P.M.

London Association of the Medical Women's Federation

The first award from the Christine Murrell post-graduate fellowship is to be made during the autumn. The amount to be awarded is £30. Further particulars can be obtained from Dr. V. Kelynack, 9, Clifford-street, Bond-street, W.1, to whom applications should be sent before Oct. 26th.

Conferences on Midwives

A conference on the Midwives Act and its operation will be held by the Royal Sanitary Institute on Thursday, Oct. 22nd, at 2.30 P.M., at the Central Hall, Westminster. Sir Kingsley Wood, Minister of Health, will preside, and will address the conference while Dr. J. J. Buchan, medical officer of health for Bradford, will open the discussion.

On Nov. 3rd, at 5 P.M., at the Royal Society of Arts, Adelphi, W.C., Sir Comyns Berkeley will take the chair at a meeting arranged by the Post-certificate School to discuss post-certificate training for midwives. The opening address will be given by Sir Kingsley Wood, and other speakers will be Prof. James Young, Miss E. Pye, president of the Midwives Institute, and Dr. H. P. Newsholme. Further information may be had from the secretary, St. John's Home, Watson-street, London, S.E.8.

Birmingham Medical School

At the opening of the new session of the faculty of medicine in Birmingham on Oct. 6th, the dean, Dr. Stanley Barnes, said that for the first time in the history of the school they had found it impossible to accept some local applicants for places. All the British schools, he said, are filled to the limit of capacity, and he foresaw the time in the near future when only matriculated students taking a degree course could be accepted. The outer shell of the new medical school would be completed, he hoped, by Christmas, but the school could hardly be ready for occupation until 1938. The new building would have twice as much room as was available at present, but it was not intended to increase materially the number of students. We would rather, he said, have a school of medium size well organised for efficient training, and especially adjusted to the needs of the Midland counties, than a large school made up of students of many types and nationalities and studying for many degrees and diplomas. But, he added, the number of applicants desirous of studying dentistry still lagged, although there was a great national demand for more surgeon dentists. Sir Reginald St. Johnston, late governor of the Leeward Islands, and an old Queen's student, presented the prizes and gave an address on the menace of speed to patient and doctor. At the dinner in the evening he went on to make two suggestions to relieve the strain. Let the would-be medical student, he said, take in his last year at school as optional subjects elementary anatomy and physiology, honours in these subjects exempting him from the theoretical papers in his professional examination. To stem the rush into private practice he would compel every newly qualified doctor to have twelve months' resident experience, partly medical and partly surgical, in some hospital or institution.

Colonel Henry Halcro Johnston, C.B., M.D., has been appointed a deputy lieutenant for the county of Orkney, and Major B. H. H. Neven-Spence, M.D., a deputy lieutenant for the county of Zetland.

Guy's Hospital

Dr. C. K. Simpson, assistant lecturer in pathology at the hospital, has been appointed Astley Cooper student for three years.

Christie Hospital, Manchester

The Christie Hospital and Holt Radium Institute at Withington, Manchester, is extending its buildings and adding to its equipment. An appeal for £40,000 is being made.

Guild of St. Luke, SS. Cosmas and Damian

The twenty-fifth annual meeting of this guild will be held at Preston on Sunday, Oct. 18th, immediately after the High Mass at St. Ignatius's, Meadow-street, which will be celebrated at 11 A.M.

A Berlin Congress of Post-graduate Medicine

From August 19th to 21st of next year a congress, devoted to the development of post-graduate medical education, will be held in Berlin at the invitation of the Reichsärzteführer (leader of medical profession in Germany), Dr. Wagner. All German scientific medical societies are to participate, and organisations in foreign countries that are essentially interested in medical post-graduate work will also be invited. The foundation of an international committee for the furtherance of such work is envisaged. The congress is in charge of Dr. Blome, the Reichsärzteführer's commissioner for medical development, and he may be addressed at the Kaiserin Friedrich-Haus, Robert-Koch-Platz 7, Berlin, N.W.7.

Manchester Victoria Memorial Jewish Hospital

At a meeting of the board of management held on Oct. 12th the chairman of the hospital, Mr. Nathan Laski, announced the intention of the board to institute a 48-hour week for nurses as soon as the additional nurses necessary to work the revised duties had been engaged. It is estimated that an extra 15 to 20 nurses will be required to augment the present staff of 51. An additional wing will be built to the nurses' home at a cost of over £4000, which is being given for the purpose by the Bernhard Baron fund. The new system is expected to involve an extra annual expenditure of £800. According to the Hospitals Year Book for 1936 the annual expenditure on maintenance of this hospital was £20,687 in 1934, so that the extra cost would be about 3·8 per cent. of this sum.

Appointments

EMSLIE, E. R., M.D. Aberd., D.P.H., has been appointed Assistant Medical Officer for Maternity and Child Welfare in Paddington.

EVANS, COURTENAY, M.D. Lond., Hon. Physician to the Royal Chest Hospital, London.

MCKEE, G. K., F.R.C.S. Eng., Registrar to the Orthopædic Departments of the Norfolk and Norwich and Jenny Lind Hospitals.

O'REILLY, J. N., D.M. Oxon., M.R.C.P. Lond., Physician to the Children's Department of the Miller General Hospital, Greenwich.

SHAW, CEDRIC, M.B. Camb., M.R.C.P. Lond., Hon. Physician to the Royal Chest Hospital, London.

SHEVLIN, F. B., M.B. Liverp., Senior Assistant School Medical Officer for York.

WHILES, W. H., M.R.C.S. Eng., D.P.M., Second Assistant Medical Officer at Humberstone Mental Hospital, Leicester.

Royal Sussex County Hospital, Brighton.—The following appointments are announced:—

BATE, A. G., M.B. Camb., F.R.C.S. Edin., Hon. Consulting Surgeon;

BERESFORD, G. W., F.R.C.S. Eng., Hon. Surgeon;

WOOD, W. R. FORRESTER, M.B. Camb., F.R.C.S. Eng., Hon. Assistant Surgeon;

WINDLE, R. W., M.D. Camb., Honorary Physiotherapeutist; and

DRYNAN, A. E., M.B. Edin., Honorary Clinical Assistant to the Dermatological Department.

Certifying Surgeons under the Factory and Workshop Acts: Dr. O. P. FRANK (Maidenhead District, Berkshire): and Dr. S. B. TURNER (Bargoes—formerly known as Maesycwmmer—District, Glamorgan).

Vacancies

For further information refer to the advertisement colum

Australia, Sydney Hospital, N.S.W.—Director of the matsu Memorial Institute of Pathology, £1500.

Bath Royal United Hospital.—Res. O., £150.

Birkenhead Education Committee.—Asst. School M.O., £500.

Birkenhead Municipal Hospital.—Sen. Res. M.O., £350.

Birmingham Children's Hospital.—First Asst. to Ear Throat Dept., £450.

Birmingham University.—Lecturer in Pathology, &c., £400.

British Postgraduate Medical School.—H.P., H.S., and Gyne logical H.S.

Burnley Victoria Hospital.—H.P., at rate of £150.

Burton-on-Trent, Bretby Hall Orthopædic Hospital.—Res. H at rate of £200.

Chelsea Metropolitan Borough.—Public Analyst, 12s. 6d. e Analysis.

Chesterfield and North Derbyshire Royal Infirmary.—Cas. O., & at rate of £200.

Coventry and Warwickshire Hospital.—H.S., at rate of £125.

Derby, Derbyshire Royal Infirmary.—Pathologist, £750.

Dorchester, Dorset County Hospital.—H.S., at rate of £150.

Dudley Guest Hospital.—H.S., £130.

Eastbourne, Royal [illegible] *ad.*—H.S., £100

Ebbw Vale General [illegible]

Glamorgan County [illegible] —Jun. Asst. M.(£350.

Glasgow Eye Infirmary.—Res. H.S., £100. Also Clin. Asst., £3

Golden-square Throat, Nose, and Ear Hospital, W.—H.S., £10

Grimsby County Borough.—Venereal Dis. M.O., &c., £900.

Halifax General Hospital.—Jun. Res. M.O., £250.

Hampstead General and N.W. London Hospital, Haverstock Hi N.W.—H.S., at rate of £100.

Harrogate Royal Bath Hospital.—Res. M.O., £156.

Hastings, Royal East Sussex Hospital.—Sen. H.S., at rate of £20

Huddersfield Royal Infirmary.—H.P. and Res. Anæsthetist, a rate of £150.

Hull Royal Infirmary.—Res. Surg. O., £200. Also H.P. t Sutton Branch Hospital, at rate of £160.

Kettering and District General Hospital.—Res. M.O., at rate of £12

King's College Hospital, S.E.—Asst. Obstet. and Gynæcologic Surgeon.

Leeds University, School of Medicine.—Demonstratorship Dept. of Pathology and Bacteriology, £300.

Lincoln County Hospital.—Jun. H.S., £150–£200.

Liphook, Hants, King George's Sanatorium for Sailors.—As M.O., at rate of £200.

London County Council.—Two Res. Med. Supts., each £95 Second Asst. M.O., £625. Part-time M.O., at rate of £30 Temp. Asst. M.O., £8 10s. a week. Asst. M.O.'s, Grade I each £350. Asst. M.O.'s, Grade II., each £250. Tem Dist. M.O.'s, at rate of £300–£170. Also Clin. Asst.

London Lock Hospital, 283, *Harrow-road, W.*—Surg. Reg. Female Lock Hospital, £100.

Manchester, Booth Hall Children's Hospital.—Med. Supt., £1100

Manchester, Crumpsall Hospital and Withington Hospital.—Two Res. Asst. Obstet. Officers, each at rate of £250

Manchester Royal Children's Hospital, Pendlebury.—Res O., at rate of £125.

Manchester Royal Eye Hospital.—Jun. H.S., £120.

Marie Curie Hospital, [illegible] —Direc Medical Services and [illegible] £2

Middlesex County Counc [illegible] per session.

Middleton-in [illegible] —Res. Asst. M.O.,

Norwood an [illegible] *l.*—Hon. Anæsthet

Nottingham [illegible] Asst. M.O.H., £7

Nottingham [illegible]). and Res. Surg. O., eac £350.

[illegible] P., at rate of £150.

[illegible] -Res. M.O., at rate of £150.

[illegible] O., at rate of £130.

Radium Beam Therapy Research, 16, *Riding House-street, W.*—Asst. M.O., at rate of £250.

Radium Institute, Riding House-street, W.—Res. M.O., at rate o £250.

Rotherham Rural District Council, &c.—M.O.H., £800.

Royal Air Force Medical Service.—Commissions.

Royal Free Hospital, Gray's Inn-road, W.C.—Asst. M.O. for V.D. Dept., £300.

Royal Naval Medical Service.—M.O.'s.

Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—Res. Cas. O. Also H.P., at rate of £150 and £100 respectively.

St. George's Hospital, S.W.—Obstet. Reg. and Tutor, £90.

Salford, Hope Hospital, Pendleton.—Asst. Res. M.O., at rate of £200.

Sheffield Children's Hospital.—H.S., at rate of £100.

Sheffield Royal Hospital.—Res. Surg. O., £200.

Southampton County Borough.—Asst. M.O.H., £500.

Stoke-on-Trent, North Staffordshire Royal Infirmary.—H.P., at rate of £150.

Surrey County Council.—Jun. Asst. M.O., £350.

Sutton and Cheam Hospital, Surrey.—Hon. Surgeon.

Swansea General and Eye Hospital.—H.S. and Cas. O., each at rate of £150.

Taunton and Somerset Hospital.—H.P. and H.S., each at rate of £100.

Westminster Hospital, Broad Sanctuary, S.W.—Radiologist.

Weston-super-Mare Hospital.—Res. H.P., £150.

York County Hospital.—H.S., £150.

The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Crewe (Cheshire) and Newington (Kent).

Medical Diary

nformation to be included in this column should reach us proper form on Tuesday, and cannot appear if it reaches later than the first post on Wednesday morning.

SOCIETIES

YAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Tuesday, Oct. 20th.—5.30 P.M. General Meeting of Fellows.

Pathology. 8.30 P.M. Dr. W. D. Newcomb: The Search for Truth. (Presidential Address.)

Wednesday.

Surgery: Subsection of Proctology. 5 P.M. Dr. J. Arnold Bargen: The Management of Chronic Ulcerative Colitis: Uncomplicated Cases.

Thursday.

Urology. 8.30 P.M. Mr. Bernard Ward: Total Cystectomy, with Transplantation of the Ureters into the Bowel, for Malignant Growth of the Bladder. (Presidential Address.)

Friday.

Disease in Children. 5 P.M. (Cases at 4.30 P.M.) Dr. A. W. Franklin: 1. Precocious Puberty in a Girl of 3¾ Years. Dr. Reginald Wilson and Dr. John A. Carter (introduced by Dr. Donald Paterson): 2–4. Three Cases Illustrating Surgical Treatment of Bronchiectasis in Childhood: (*a*) Left Total Pneumonectomy; (*b*) Bilateral Lower Lobectomy; (*c*) Left Lower Lobectomy. Dr. E. A. Cockayne: 5–6. Hepatosplenomegaly with Osteochondrodystrophy (Gargoylism) in Brothers.

Epidemiology and State Medicine. 8.15 P.M. Surgeon Rear-Admiral S. F. Dudley: The Ecological Outlook on Epidemiology. (Presidential Address.)

Physical Medicine. 8.30 P.M. Dr. Geoffrey Holmes: Hydrology Old and New. (Presidential Address.) Dr. Douglas H. Collins: Recent Developments in Hydrology in America.

OYAL MICROSCOPICAL SOCIETY, B.M.A. House, Tavistock-square, W.C.

Wednesday, Oct. 21st.—5 for 5.30 P.M., Major H. C. Brown, I.M.S., and Dr. J. C. Broom: Micro-cataphoresis and its Application. Mr. C. G. Dobbs: A Coremium Stage of Mucor.

OCIETY OF MEDICAL OFFICERS OF HEALTH, 1, Thornhaugh-street, W.C.

Maternity and Child Welfare Groups.

Thursday, Oct. 22nd.—8.30 P.M., Dr. E. J. Boome: Speech Defects in Young Children.

EDICO-LEGAL SOCIETY.

Thursday, Oct. 22nd.—8.30 P.M. (Manson House, 26, Portland-place, W.), Mr. C. E. A. Bedwell: Legal Status of Voluntary Hospitals.

UGENICS SOCIETY.

Tuesday, Oct. 20th.—5.15 P.M. (rooms of the Linnean Society, Burlington House, Piccadilly, W.), Dr. Eliot Slater: The Inheritance of Mental Disorder.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

OYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.

Monday, Oct. 19th.—5 P.M., Sir Walter Langdon-Brown: The Background to Harvey. (Harveian Oration.)

OYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.

Monday, Oct. 19th.—5 P.M., Dr. L. W. Proger: Intestinal Diseases.

Friday.—5 P.M., Dr. A. J. E. Cave: The Nature of Various Fasciæ.

NIVERSITY OF EDINBURGH.

Tuesday, Oct. 20th.—5 P.M., Dr. George Riddoch: Clinical Aspects of Hypothalamic Derangement.

Thursday.—5 P.M., Mr. Norman Dott: Surgical Aspects of Hypothalamic Disorders.

NSTITUTE OF MEDICAL PSYCHOLOGY, Malet-place, W.C.

Monday, Oct. 19th.—3 P.M., Dr. J. A. Hadfield: Psychological Background. 4.30 P.M., Dr. E. A. Bennet: Dream Interpretation. 5.45 P.M., Dr. B. D. Hendy: A Case of Bridge Phobias.

Thursday.—3 P.M., Dr. Hadfield: Mental Mechanisms. Dr. M. B. Wright: Principles of Psycho-analysis (Freud). 5.45 P.M., Dr. Hendy: A Case of Obsession.

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane-road, W.

Monday, Oct. 19th.—2.15 P.M., Dr. Duncan White: Radiological Demonstration.

Tuesday.—4.30 P.M., Dr. H. Yellowlees: Psychological Medicine.

Wednesday.—Noon, clinical and (medical). 2.30 P.M., clinical ference (surgical). 4.30 P.M., F.R.S.: Microscopy.

Thursday.—2.15 P.M., operative obstetrics. 2.30 P.M., Mr. G. Jefferson: Surgery of Nervous System. 3.30 P.M., Dr. R. M. Fry: Puerperal Sepsis.

Friday.—2.15 P.M., Department of Gynæcology: Pathological Demonstration.

Daily, 10 A.M. to 4 P.M., medical clinics, surgical clinics or operations, obstetrical and gynæcological clinics or operations.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.

Monday, Oct. 19th.—10 A.M., skin clinic. 11 A.M., surgical wards. 2 P.M., gynæcological and surgical wards, operations, medical, surgical, eye, and gynæcological clinics. 4.15 P.M., Lecture: Mr. Green-Armytage: Vaginal Discharge.

Tuesday.—10 A.M., medical wards. 11 A.M., surgical wards. 2 P.M., throat, nose, and ear, medical, and surgical clinics, operations. 4.15 P.M., Dr. Hudson: Pulmonary Tuberculosis in Infancy.

Wednesday.—10 A.M., children's clinic. 11 A.M., medical wards. 2 P.M., eye, medical, and surgical clinics.

Thursday.—10 A.M., neurological and gynæcological clinics. Noon, fracture clinic. 2 P.M., medical, surgical, eye, and genito-urinary clinics. 4 P.M., venereal diseases.

Friday.—10 A.M., medical wards, skin clinic. Noon, lecture on treatment. 2 P.M., medical, surgical, and throat, nose, and ear clinic. 4.15 P.M., Dr. Konstam: Cardiac Therapeutics.

Saturday.—10 A.M., children's and surgical clinics. 11 A.M., medical wards.

The lectures at 4.15 P.M. are open to all medical practitioners without fee.

LONDON SCHOOL OF DERMATOLOGY, 5, Lisle-street, W.C.

Tuesday, Oct. 20th.—5 P.M., Dr. W. K. Sibley: Electrotherapeutics.

Thursday.—5 P.M., Dr. H. W. Barber: Psoriasis.

HOSPITAL FOR EPILEPSY AND PARALYSIS, Maida Vale, W.

Thursday, Oct. 22nd.—3 P.M., Dr. Douglas McAlpine: Clinical Demonstration.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

Wednesday, Oct. 21st.—2 P.M., Dr. Donald Paterson: Breast-feeding. 3 P.M., Dr. Reginald Lightwood: Causes and Treatment of the Anæmias of Infancy.

Out-patient clinics daily at 10 A.M. and ward visits at 2 P.M.

NATIONAL HOSPITAL, Queen-square, W.C.

Monday, Oct. 19th.—3.30 P.M., Dr. Kinnier Wilson: The Motor System.

Tuesday.—3.30 P.M., Mr. Sydney Scott: Auditory and Vestibular Nerves.

Wednesday.—3.30 P.M., Dr. Kinnier Wilson: Clinical Demonstration.

Thursday.—3.30 P.M., Dr. Gordon Holmes, F.R.S.: The Sensory System.

Friday.—3.30 P.M., Dr. Bernard Hart: Psychopathology.

Out-patient clinic daily at 2 P.M.

ST. MARY'S HOSPITAL, W.

Thursday, Oct. 22nd.—5 P.M., Dr. G. O. Barber: The Common Ailments and the Approach to their Treatment (General Practice III.).

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.

Wednesday, Oct. 21st.—3 P.M., Lord Snell: England and America: Their Past and Present Relationships.

ST. PAUL'S HOSPITAL, Endell-street, W.C.

Wednesday, Oct. 21st.—4.30 P.M., Mr. Kenneth Walker: Recent Advances in the Pathology and Treatment of Prostatic Enlargement.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION.

Wednesday, Oct. 21st.—4 P.M. (St. James's Hospital, Balham), Dr. T. A. Williams: Some Perverted Functions—Differential Treatment.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

Monday, Oct. 19th, to Sunday, Oct. 25th.—St. John's Hospital, 5, Lisle-street, W.C. Afternoon course in dermatology.—Chelsea Hospital for Women, Arthur-street, S.W. All-day course in gynæcology.—West End Hospital for Nervous Diseases, Welbeck-street, W. All-day course in neurology.—City of London Maternity Hospital, City-road, E.C. Sat. and Sun., course in obstetrics.

MANCHESTER ROYAL INFIRMARY.

Tuesday, Oct. 20th.—4.15 P.M., Dr. C. S. D. Don: The Differential Diagnosis of Toxic Goitre.

Friday.—4.15 P.M., Dr. R. S. Paterson: The Scope of Present-day X Ray Therapy.

ANCOATS HOSPITAL, Manchester.

Thursday, Oct. 22nd.—4.15 P.M., Dr. R. Ellis: Albuminuria.

LEEDS GENERAL INFIRMARY.

Tuesday, Oct. 20th.—3.30 P.M., Mr. Claye: Treatment of Fibroids.

LEEDS PUBLIC DISPENSARY.

Wednesday, Oct. 21st.—4 P.M., Mr. A. Gough: Radium in Gynæcology.

Victoria Memorial Hospital, Welshpool.—Dame Agnes Hunt on Sept. 22nd opened a new wing at this hospital, erected as a memorial of the late King's Silver Jubilee.

Essex County Hospital, Colchester.—Mr. George Rose has laid the foundation-stone of the new surgical ward block of this hospital, which is the start of a £40,000 scheme of extension to which Mr. Rose has contributed £7000, the cost of one of the surgical wards.

NOTES, COMMENTS, AND ABSTRACTS

THE MEDICAL PROFESSION versus THE WARFARE ASSOCIATION*

BY D. A. CROW, M.B. Edin.
CONSULTING AURIST TO THE ROYAL SUSSEX COUNTY HOSPITAL

THE press of Europe has nearly succeeded in working up the fears and suspicions of the people into that state when they almost long for the uncertainty to be ended by a call to arms. If war breaks out, the medical profession will throw all its weight of unselfish effort into the turmoil, and in the end will have done nothing but help, as far as is possible, to clear up the mess. Is it not possible that a great and powerful profession, such as our own, should make some vivid gesture towards minimising the risk of a mess occurring at all?

Do you recall a most courageous action by a doctor in the last war, who jumped from the strangers' gallery in the House of Commons and shouted to our scandalised legislators that in common mercy they should provide steel helmets for our men? The press next day, reporting this fearful violation of the dignity of the House, conveyed the impression that it was the act of a maniac. It was not. It was the act of a regimental medical officer in his full senses and in deep affection for the men he had left in the trenches. The steel helmets, all the same, were eventually forthcoming; and I do not think that on any occasion in the war the medical profession had so much reason to be proud of one of their number.

Now is it possible that, in the face of the most appalling menace to public health that ever existed, the only profession which claims to be the guardian of that public health should not only take no active steps to prevent the danger but should raise scarcely a voice of warning as to its devastating character? It is true that at this year's meeting of the representative body of the British Medical Association a resolution was put forward stating that "protection against poison gas was inevitably imperfect, that the use of it should be proclaimed illegal, that medical men of all countries should combine to prohibit its manufacture, in order to save civilisation from utter destruction." But this resolution was amended and altered and shortened and twisted about until in its final stage it was about as feeble and unrecognisable as a patient on whom enthusiastic surgeons have been tracking down a septic focus. I cannot say that the original resolution appeared very powerful except as an indication that at least some in the profession had determined to remain silent no longer. There can be no point in declaring things illegal when people go mad; the only possible appeal when things get to that stage is force, and that means unrestricted war. But reading the report of that meeting one feels that less than justice had been done to the generous ardour of those who had put forward the resolution, and that some of the critics would have emasculated with equal suavity and heartlessness *any* resolution making for peace though it had been more in touch with reality than the one in question.

I do not believe that because we are inarticulate we are in the least indifferent. It is much more likely that we are unconsciously oppressed with a sense of impotence, the result of the very immensity of our political machine. For that reason we welcomed the transfer of our aspirations to the League of Nations and woke with the greater shock from the dream. If the medical profession were to put into words its horror of war there would be no particularly ethical or religious sentiments about it; we should declare, quite simply—and not with a view to frightening people, because fright isn't the slightest deterrent from war, but rather an incentive—that modern mechanised war is totally dysgenic, because t unfittest for the most part survive; that it offers prospect of epidemics compared to which the 19 pneumonia outbreak will seem trivial; that it mea hardly less than the suspension of evolutiona development. It is a poor protest against war whic stresses the hardships it involves; it is the prosp of a progressive degeneration in vitality which so appalling.

But with much of this you probably agree; th question is whether it is possible, having put it i words, to transfer it into any kind of action likely t be effective in preventing war. Consider for a momen in what way groups of people have hitherto strive to oppose war.

There is the type of pacifist who argues that wa is financially unprofitable. But who cares if it is The motive force of war derives from atavistic source long antedating, and greatly overpowering, considera tions of finance. Then there is the pacifist who much more profoundly, says, your intrigues are too much for me, your political machine is out of control I, therefore, obey a deep instinct within me tha proclaims war to be evil and assert my individua right to take no part in it. This is courageous. Bu it is damned from the outset by an overwhelming weight of national feeling inflamed by quite primitive tribal fears and suspicions, some of them justified and others not. And the same applies to less extreme, but more vague, appeals for a more or less sentimental peace. They *cannot* carry the country.

There is one point at which the problem can be hopefully approached, and that is, the concentration of the whole nation on preventing individual profit from war. It should not be impossible to nationalise first the armament industry (and indeed it was very partially nationalised during the war by limiting profits to 20 per cent.) and then in turn every other industry to which war is attractive. I believe there would be such a sudden lull in national fears and suspicions that even a political conference might have some hope of success. I do not think we at all realise what a volcanic force is amongst us working for individual profit out of war. I call it volcanic; but it is more like a neoplasm, with metastases everywhere—in the papers, in the cinemas, and in every committee which ever made a political decision; the common sense of no nation is proof against its insidious propaganda.

Consider for a moment the vast capital sunk in firms which profit by war and by the scare of war. A hundred millions of capital at least are directly concerned with armaments and beyond this is a vast number of contributory activities whose interest is bound up with war. Now it is untrue to say that most of the men behind these interests actually seek war. Many of them are actuated by quite simple motives of patriotism and commercial integrity, but amongst them are undoubtedly men who actually make it their business to increase national suspicions and fears in order that their business shall prosper, and are utterly unscrupulous in the methods they employ. I refer any who read this to Lewinsohn's "Profits of War," and Neumann's "Life of Sir Basil Zaharoff."

It is quite irrelevant to the point I am trying to emphasise that a real danger may exist, and does indeed exist while gangster-minded dictators are at large; the argument is that there are world-wide plots to anger one nation against another. The German steel trusts bargain with Hitler; the French and British firms exploit the panic; the armament firms can none of them lose under such circumstances; but pacific peoples can be driven by fear into madness and find themselves enemies with people whom they do not naturally hate. I do not know whether the secret and powerful forces concerned can be controlled; one has little hope that they can be overcome by constitutional means. But if I had the courage, and if one hundred other medical men in this country also had the courage—so that the action could carry a little weight—to pay no more income-tax until the arms industry at least was nationalised, then we would suffer untold misery and be slandered with merciless venom; but when the next war is over and people are wondering what it has all been about, and the merchants of armaments are telling them that their lovers and husbands had died on the Cross of Sacrifice, just like Jesus—then at least it could not be said that the medical profession had been altogether complacent at this heart-breaking nonsense, however feeble their protest may have been.

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* Abridgment of an address delivered before the Brighton division of the British Medical Association.

That is the concrete suggestion that I make—that a few medical men should decline to pay taxes until the arms industry at least is nationalised and a beginning made to take the profit out of war.

We are to-day spending our lives combating disease; and disease, when you come to think of it, is relatively eugenic, eliminating itself if left alone. At least, it is eugenic compared to war, which is actively dysgenic. There may be just time to tell the stupid world what we know before they begin once again, and for the last time, to wave their pathetic little flags. The Warfare Association demands of us courage at its own chosen time and for its own chosen ends. Let us show courage when *we* choose, and that at once, before it is too late.

A LINK WITH JENNER[1]

FOR nearly three years Jenner's family tutor was John Dawes Worgan, a remarkable boy who was appointed to the post before he had attained his sixteenth birthday, but at this youthful age he had completed a "centenary" of sonnets and was well read in classical literature. Selections from his works were published posthumously in book form in 1810, and in the preface the editor writes: "I applaud the spirit and propriety with which he (Worgan) appeared as the public eulogist of his beneficent patron Dr. Jenner." His Essays on Vaccination, reprinted in this volume, were the result of his own reading and unbiased consideration and were written to disseminate Jenner's discovery and to meet the common objections to the practice, although at the beginning of his inquiries he was in a sceptical mood and regarded the vaccine discovery as on the same level as the Cordial Balm of Gilead and the Restorative Drops. Serious illness prevented the writing of a seventh essay on the obstacles impeding the growth of vaccination. In addition he wrote an "Address" in heroic verse which was printed and presented to the Jennerian Society at the annual meeting in 1808. He also deserves notice for a Eulogy in Latin verse of the surgeon John Ring, an ardent vaccinationist. He refers to the honour accorded to Jenner in Germany where it was the custom to place his bust, adorned with roses and garlands, on a kind of altar, around which the people danced and sang grateful songs to his name. "What a contrast to London," says Worgan, "where his fame is aspersed by invidious and malicious individuals."

In the second Essay he alludes to the Report of the Royal College of Surgeons in London. In response to a questionnaire this College had received statistics of 163,381 vaccinations and of this number only 56 instances occurred in which small-pox followed the operation, or one failure in nearly 3000 cases. Replies to the questionnaire include those from many interesting men, that sent in by Abernethy being reproduced in the article. In the matter of a protection period Worgan said that many aged people, infected with small-pox in youth, had resisted any attempt to communicate the small-pox to them, but here he was probably thinking of the farm hands of Gloucestershire, and lost sight of the fact that their occupation would render them liable to reinoculation. Dr. Jenner, he says, vaccinated an immense number of people during a period of ten years and diligent inquiry had failed to discover a single instance of subsequent small-pox.

Cartoons and scare-sheets of the time depicted "new" diseases alleged to be due to vaccination. As a counterblast Worgan brought forward authoritative opinions which proved that the idea of "new" diseases was due to the inventions or mistakes of ignorant men. In the fifth Essay he stresses the danger of permitting the subjects of variolous inoculation to range the public streets; he asserted that if they were isolated small-pox would be banished.

Worgan was set upon entering the Church and was ever striving to prepare himself for academic distinction and future celebrity. While residing with Jenner he studied so hard that "an extraordinary determination of blood to the brain" obliged him to desist from mental exercises for a considerable time, his head "being much relieved by Dr. Jenner's advice." The following year a second attack of typhus fever left him much weakened, with frequent pain in the side and chest, followed by a copious hæmorrhage from the lungs. Jenner's utmost skill and the presence of his mother, who was invited to remain with him during his illness, combined to palliate the disease, and he was able to bear removal to his home in Bristol where he died at the early age of 18 years. In a note shortly before his death he wrote: "For the ten weeks I remained under Dr. Jenner's roof, his attention and kindness were unremitting." Jenner's sympathy is manifest in the following letter to a friend:

> "Your letter came too late for me to make any observation upon what you drew up for insertion in the Bristol paper respecting our dear departed friend. It must be some consolation to his surviving relations and friends that his name will not be forgotten. . . . I beg you will present my best wishes to Mrs. Worgan and tell her, unless she particularly wishes it, I should be sorry to put her to the expense of a ring, but yet, I should like to have something in remembrance of poor John. A book would be acceptable. The editor of the *Cheltenham Chronicle*, who was the intimate acquaintance of poor Worgan, has paid a just tribute to his memory in the paper of yesterday."

A few months later Jenner was to mourn the death of his own son Edward, Worgan's pupil and fellow sufferer, who also died of pulmonary tuberculosis.

MOVEMENTS OF POPULATION

THE preliminary report of the census of population of the Irish Free State, taken earlier this year, showed a very slight decline in the numbers enumerated, a decline entirely due, our correspondent from Ireland has pointed out,[1] to a loss of the female sex. The virtual stoppage of emigration to the U.S.A. appears to have led to an increase in other directions, Great Britain being the main recipient. From figures published in the 1931 census reports of England and Wales it seems likely that this movement of Irish women is partly a reflection of the difficulties of the English housewife in obtaining domestic assistance of one type or another for the comfortable maintenance of her home. These reports show that of persons born in the Irish Free State but enumerated in this country there is sex equality or an excess of males in the mainly industrial regions such as the Northern and Midland areas, the West Riding of Yorkshire, the cities of Liverpool and Manchester. The excess of Irish females over Irish males is to be found in the south and south east, in Greater London and especially in such boroughs as those of Hampstead, Kensington, and Westminster where the women are twice to thrice as numerous as the men, and where the demand for domestic help is probably at its maximum. The greatest excess of these Irish-born women is at the young adult ages, 20 to 35 years of age. In spite of this movement the proportion of Irish in the population of this country is at a far lower level than it has been in the past. In 1851, of every 100,000 persons in England and Wales nearly 3000 were born in Ireland, in 1931 the corresponding figure was under 1000.

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[1] S. Wood: Annals of Medical History, September, 1936.

[1] THE LANCET, Sept. 12th, p. 652.

While the Irish Free State is ceasing to lose population at the heavy rates of the last century, concern continues to be repeatedly expressed at the "depopulation" problem in France. In 1875 there were registered a million births, in 1935 only 635,000. During those years Great Britain has increased from 26 to 46 millions, Germany from 39 to 67, Italy from 23 to 43, Japan 33 to 68, France from 38 to only 41. From these figures Charles Richet draws gloomy conclusions as to the future of France[2] which he sums up as "des enfants ou la mort." Even if the infant mortality-rate could be reduced to zero the population, he concludes, would scarcely grow. With those who under the guise of eugenists would have no reproduction except from the "absolutely perfect" he has no patience, nor with those who would see the size of the family adjusted to the length of the purse. His solution is to lengthen the latter by premiums on births, family allowances, and tax exemptions. But these familiar expedients, as an investigator for the Eugenics Society has shown,[3] do not so far seem to have had an enthusiastic response from married couples.

CHILDREN'S SPECTACLES

THE People's League of Health is turning particular attention to the care of the eyesight of children, and point out in a recent circular that while examination by a qualified medical practitioner is one of the conditions obviously needed for treatment, the lenses or glasses which may be necessary to improve the child's sight and to prevent aggravation of any defect must be accurately made in accordance with the doctor's directions. But a special point is made of proper fitting frames. Obviously it is in vain for the ophthalmologist to order the right glasses, and for the optician to supply them, unless the frame which carries the glasses holds these accurately in position. Frames which are easily bent or twisted or ill-fitting are constant sources of mischief. The matter is not sufficiently pressed on the attention of parents and education authorities, and the service of the National Ophthalmic Treatment Board is not sufficiently requisitioned. Under this organisation the making of the glasses and the frames is undertaken by dispensing opticians, all of whom are specially trained and certified as efficient after examination. The name and address of the local dispensing optician may be obtained from any medical man, or from the headquarters of the People's League of Health, 12, Stratford-place, London, W.1.

It is announced that a nation-wide campaign to instruct the public in the care of the eyes is being undertaken by the National Ophthalmic Treatment Board in conjunction with the British Medical Association. It will be carried out by means of booklets, lectures, and the cinema.

GARGLES

ON Sept. 12th we suggested that conclusive experiments should now be performed to decide whether gargling is or is not an effective method of bringing antiseptic, astringent, or cleansing fluids into contact with the tonsils, pharynx, or nasopharynx. In the *Guy's Hospital Gazette* for Sept. 26th Mr. A. Bowen-Davies reports that 12 volunteers in the Guy's ear, nose, and throat department were induced to gargle with potassium permanganate solution of sufficient strength to stain mucous membrane with which it came in contact. "In only one case was there any staining on the tonsils or pharynx. In four cases the anterior pillars of the fauces were stained, whilst in the remaining seven cases the mucous membrane behind the last molar teeth was normal." Mr. Bowen-Davies suggests that the reason why hot gargles are soothing for acute inflammatory conditions in the throat is that the swallowing reflex is so much in abeyance that they can be retained in contact with the pillars of the fauces. He adds: "It is not denied that in certain cases a gargle may penetrate to the epiglottis without being swallowed, but these are few. If this number is to be increased, the horror of swallowing the mixture should be removed by prescribing only innocuous gargles, or preferably those which should be swallowed."

PROGNOSIS OF SEVERE GASTRIC HÆMORRHAGE.—Prof. Finsterer writes to correct a statement wrongly attributed in the second paragraph of his article in THE LANCET for August 8th (p. 303). The sentence, "Aitken reports that of 62 cases (11 over 60 years of age) which bled for over 24 hours, all died of hæmorrhage," should read: "Chiesman reports (THE LANCET, 1932, ii., 722) that among 62 patients who bled longer than 24 hours there were 11 patients over 60 years of age, and that all these 11 patients died of continued hæmorrhage."

A MANUFACTURERS' AMALGAMATION.—We are asked to state that the firm of Endocrines Limited has amalgamated with Messrs. E. H. Spicer and Co., Ltd., to form Endocrines-Spicer Ltd. A new reference list of their products, which include those previously obtainable from the two firms, is to be had from Endocrines-Spicer Ltd., Watford, Herts.

DOSAGE OF CINCOPHEN.—In a leading article on p. 857 of our last issue the official (1932) dosage of cincophen was given as 5–20 grains. This was an error. The maximum official dose is 15 grains, now reduced in the Addendum to 10 grains.

Births, Marriages, and Deaths

BIRTHS

DAVIDSON.—On Oct. 5th, the wife of Major T. W. Davidson, R.A.M.C., Dover, of a daughter.

HODGES.—On Oct. 2nd, the wife of Dr. Richard Hodges, of *Warminster, Wilts, of a son.*

LANGHORNE.—On Oct. 4th, at Bentinck-street, W., the wife of Dr. D. A. Langhorne, of a son.

PILCHER.—On Oct. 5th, the wife of Mr. R. E. M. Pilcher, *F.R.C.S., Boston, Lincs, of a son.*

STENHOUSE.—On Oct. 2nd, at Morpeth, the wife of Dr. Geoffrey B. Stenhouse, of a daughter.

MARRIAGES

CORNWALL—GRAY.—On Oct. 9th, Lt.-Col. J. W. Cornwall, C.I.E., M.D., I.M.S. (Retd.), of Elstead, to Mrs. J. Gray, widow of J. Gray, I.C.S.

MACKIE—MACMILLAN.—On Oct. 7th, at Claremont Church, Glasgow, Carmichael Mackie, M.B., Ch.B., to Margaret, younger daughter of Mr. Charles Macmillan, Glasgow.

DEATHS

BUCHANAN.—On Oct. 11, Sir George Seaton Buchanan, C.B., M.D. Lond., of Wetherby Mansions, Earl's Court-square, London.

BUTLER-SMYTHE.—On Oct. 9th, at Brook-street, Grosvenor-square, Albert Charles Butler-Smythe, M.B.E., F.R.C.P., F.R.C.S. Edin., in his 84th year.

CRESSWELL.—On Oct. 6th, at Cardiff, Frank Pearson Skeffington Cresswell, M.B. Lond., F.R.C.S. Eng.

FORD.—On Oct. 11th, at Wimbledon, J. N. C. Ford, M.B. Oxon., of Eastbourne.

HEBB.—On Oct. 10th, at Brighton, Frederick Theodore Hebb, M.R.C.S. Eng., of Alton, Hants, aged 84.

MITCHELL.—On Oct. 5th, at Sutton, Surrey, James Murray Duff Mitchell, M.D. Aberd., F.R.C.S. Eng.

OPIE.—On Oct. 5th, at Poona, following an accident while racing at the Poona and Kirkee Hound Races, Philip Adams Opie, Major, R.A.M.C., M.B. Camb., Surgeon to His Excellency the Governor of Bombay.

STANWELL.—On Oct. 7th, at Bournemouth, William Stanwell, M.R.C.S. Eng., New Milton, Hants, formerly of Rochdale.

STOKES.—On Sept. 24th, in South India, Louis Patrick Stokes, L.R.C.P. and S.I., chief medical and sanitary officer, Kolar Gold Field, Mysore State, aged 54.

THORPE.—On Oct. 9th, Reginald Thorpe, M.R.C.S. Eng., of Elmbourne-road, S.W., and Harley-street, W., oculist to the L.C.C. school clinic, Wandsworth.

WOAKES.—On Oct. 7th, at Buckland-crescent, N.W., Claud Edward Woakes, M.R.C.S. Eng.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

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[2] Paris Méd., July 25th, p. 1.

[3] THE LANCET, August 22nd, p. 441.

ADDRESSES AND ORIGINAL ARTICLES

THE BACKGROUND TO HARVEY*

BY SIR WALTER LANGDON-BROWN, M.D. Camb.,
Hon. D.Sc. Oxon., F.R.C.P. Lond.

EMERITUS PROFESSOR OF PHYSIC IN THE UNIVERSITY OF CAMBRIDGE; CONSULTING PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL

THE personality of every great man has a certain impact on his own generation, but when Thomas Hobbes said that Harvey was the only man who had seen his theories accepted during his lifetime he must have been thinking of the younger generation which had grown up since the theory became known. For the men of Harvey's own standing were never convinced. Questions that we know were put to an unsuccessful candidate for the licentiateship in 1632 prove that his discovery had not yet been accepted by his colleagues. Nevertheless had his biography been written in the vogue now only too prevalent of searching for what was called "the real man," which means a hunt for his failings, Harvey would have emerged from the ordeal very well, and it would still have to be allowed that he profoundly influenced physiology, if not medicine, for the rest of the century. Mr. Wilfred Trotter said of John Hunter:

> "It needs all our imaginative sympathy to picture the twilit country in which his labours were carried on—the air is dim and thick, the range of vision short, the appearance of things ambiguous. . . ."

This is even truer of Harvey, but as Mr. Trotter pointed out, Hunter's influence was more limited to the indirect and germinal while every student of physiology is in some sense the beneficiary and direct legatee of Harvey.

I do not aspire to paint yet another portrait of Harvey, for the hastiest perusal of the orations will prove how well that has been done, but to try to picture something of his background, in the hope that thereby I may do something to make his figure stand out more clearly against it. Not so much the physical background of Cambridge, Padua, St. Bartholomew's, and this college as the background of the thought of his time. An ambitious task, but it has always interested me to inquire why men thought what they did when they did. And this shall be my offering to a great name. I am the more encouraged to make this attempt because for reasons I hope to analyse, the seventeenth century has a topical interest for us to-day. Different ages have been interested in different epochs: our fathers were interested in the Renascence, the Renascence was interested in the classical age; to-day we seem to be rounding off a school of thought that was born in the seventeenth century, and so we turn back to inquire, why did men think what they did then?

We are learning that the dark ages were not so dark as they were painted. The marvellously rapid flowering of the Renascence tends to blind us to the subtle changes that were occurring before. Sometimes there comes a spring so early in the year that we fear the return of a frost that will nip the incautious buds. Something of that sort happened in Europe in the thirteenth century. There was a stir in the air. True there had already been a revival of architecture, but now a new and delicate art was being revealed by such men as Duccio and Giotto. A new attitude to the world, a frank love of nature, of life in all its manifestations made its appearance. I like to think it was due to St. Francis of Assisi. His example certainly inspired Giotto to his earliest creative efforts, and the Franciscans were the first scientific investigators of this new age. For when man begins to wonder he desires to investigate. Was not Roger Bacon, the father of English natural science, a Franciscan?

And then came the frost, and the icy fetters of theological authority imposed a return of winter. Roger Bacon languished in prison for many years and no attempt was made to revive any interest in experiment until the days of his greater namesake. The impulse towards a newer freer attitude to life was nipped in the bud and had to throw down deeper roots before again emerging. One great and permanent gift remained—the universities.

The Renascence was late in reaching England. Even in France it was unknown till 1494 and the first Renascence architecture in England is to be found in a chantry dating from 1500 in Christchurch Minster. Consequently we are in this country a little apt to overstress the part played by the new learning, the new writing, and the new world in producing that wonderful efflorescence. Its inner essence remains as mysterious as the springing of youth into adolescence, and these events had found a soil already fertilised as the work of Donatello, Fra Angelico, and Luca della Robbia testified. It has been said somewhat sardonically that at Cambridge, "learning like a stranger came from afar" in the person of Erasmus in 1510. Eight years after that Thomas Linacre founded this college, and two years later his lectureships at Oxford and Cambridge, while in 1540 Henry VIII. founded the regius professorships there. With such a splendid start it may seem strange that the immediate results were disappointing. Yet on inquiry it is not so surprising. For the aim was to revive the old medical learning. It was authoritarian. Medical teaching at the universities consisted in the reading and expounding of Hippocrates and Galen, and in this college in 1559 John Geynes was cited for impugning the infallibility of Galen. Not until he had humbly recanted was he admitted to our fellowship in the following year. Something more was needed than the revival of the old; a new spirit was required to make these dry bones live. It seems paradoxical that the reign of Mary Tudor should have indirectly contributed to this desirable end, but those who fled then to Geneva, Frankfort, and Strasbourg returned on Elizabeth's accession, bringing with them a wider culture than England had previously known. But that new spirit found clearest expression in Francis Bacon's "Novum Organum." In these days when every week some book is proclaimed as epoch-making, it sounds jejune to apply this epithet to a work which showed the way to the investigation of the world of phenomena. Projected in his youth, it was prepared by a series of sketches, revised and rewritten at least twelve times, and finally published in 1620.

Men did not realise its portent at once. Even Harvey was mildly scoffing at his distinguished patient's philosophy though he admired the man. Yet as Sir William Hale-White clearly showed in his oration, he must have been deeply influenced by it. Just so, though more openly, men scoffed at Darwin, Lister, and Freud, only to find themselves, a few years later, utilising their ideas and their methods.

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* The Harveian Oration delivered before the Royal College of Physicians of London on Oct. 19th, 1936.

Why does this history repeat itself so inevitably? Because "there can be no approach to truth without some threat to the thinker's personality" (Trotter). The dogmatic rationalism of the scholastics had produced a system which claimed to give a coherent and consistent account of nature, of man, of the spiritual world, and of any other kind of world which might be supposed to exist. Why trouble to look further, why explore an uncharted sea? The unknown might change us, shake us out of our comforting certainties. Without curiosity there can be no science.

Into this dusty atmosphere of scholasticism FRANCIS BACON came like a breath of fresh air, declaring that we are not spiders to go on indefinitely spinning cobwebs out of ourselves. He praised the more excellent way of the bee, which gathers its material from the flowers of the garden and of the field, but digests it and transforms it by a power of its own. Though much of it appeared in his earlier works, the "Novum Organum" contains the fruit of his thought, and I cannot resist the temptation to distill a little of its essence by paraphrase and quotation. In only a few ages had the conditions been favourable to the development of science he said—"in times, no less than in regions there are wastes and deserts." He maintained that the science of his day was not a method of invention while the prevalent logic merely fixed errors founded on popular notions.

> "What a man had rather were true, he more readily believes. . . . Numberless are the ways, and sometimes imperceptible, in which the affections colour and infect the understanding. . . . We must begin anew from the very foundations. . . . The understanding must not be supplied with wings, but rather with weights to keep it from leaping and flying. . . . Noble inventions may be lying at our very feet and yet mankind may step over without seeing them."

In well-known phrases he goes on to impeach *the idols of the tribe*, or the deceptive tendencies inherent in the minds of all men; *the idols of the cave* that belong not to the race but to the individual; *the idols of the market place*, whereby men are governed by words rather than by facts; and *the idols of the theatre* (if we said "lecture theatre" his meaning would be clearer) due to the authority of philosophical systems and perverted rules of demonstration. He joins hands with certain modern philosophers in declaring that the mind of man supposes more order and regularity in the world than it can actually find, and Harvey's somewhat similar pronouncement may well have been derived from that source.

Bacon never claimed to have originated the method of induction, which he freely attributed to Plato. But so great a stimulus did he give to its employment that it may seem strange that his plan for the renewal of the sciences has never been deliberately followed in its entirety by others. Two, perhaps three, flaws in it may offer a partial explanation. In the first place the defects in his own scientific equipment led to a certain crudity in his conceptions of nature, which gives some justification for Harvey's scoff that Bacon "wrote philosophy like a Lord Chancellor." In the second place he claimed that his way of discovering sciences went far to level man's wits and left little to individual excellence. Never was there a greater fallacy. It leaves out of consideration the scientific use of the imagination. Fabricius had observed the valves in the veins, but regarded them as pockets designed to catch blood that would otherwise have collected in the extremities. Robert Boyle tells us that Harvey saw a tiny but momentous flaw in the argument. For he observed that the veins to the head also had their valves set towards the heart. There was the germ which cultivated by his scientific imagination flowered into his immortal discovery. Pasteur said that chance only visits the mind that is prepared. Although Darwin claimed to have worked on true Baconian principles, he wrought better than his master knew, for his collection of instances was guided by a hypothesis of which the validity could be tested. No one who has had to disburse the endowments for research can accept the view that the scientific method levels men's wits.

In the third place when Bacon said "I only sound the clarion, but I enter not into the battle," he deprived himself of the crucial test of his own method. He did as a matter of fact carry out a few experiments, one of which was fatal, for on a wintry day in March, 1626, he caught the chill which ended his life while stuffing a fowl with snow to see if cold would delay putrefaction. It was probably this scant practical experience which led him to slight William Gilbert's work, a more careful study of which would have saved him from some errors. Gilbert was "the first real physicist and the first trustworthy methodical experimenter" and we are proud that he, who influenced Harvey, was a president of our college.

Nevertheless Bacon "did more than anyone else to help to free the intellect from preconceived notions." In his own words he pointed the way to "a new and unexplored kingdom of knowledge within the reach and grasp of man, if he will be humble enough and patient enough to occupy it."

But he was notoriously a better guide in science than in morals, and it is impossible to understand seventeenth century thought without taking into account its preoccupation with morals. At the Renascence men felt released from the moral and religious codes which had bound them for centuries; they believed that they could reap where they had not sown. The subtle awakened intellects appreciated the advantage of brain over brawn and proceeded to exploit the simpler minded. Caius even came to doubt the wisdom of his benefactions and of his support to the new learning. However, the reign of the Machiavellis was not unchallenged for long. Morality would keep breaking through. Over this line of cleavage Shakespeare brooded. A new sensibility was being born and he was conscious of a note of irresolution. He realised that the Mercutio of the south was giving way to the Hamlet of the north. Unlike Dante who was always a judge, Shakespeare was a recorder. It takes a poet to plumb a poet's mind, and it was John Keats who put his finger on one of Shakespeare's greatest characteristics, his capacity for "being in uncertainties, mysteries, doubts, without any irritable reaching after fact and reason."

The age had been one of frantic activity. England had experienced every stimulant: wild adventures in the ends of the earth, threats of destruction from abroad, constant plots within. Now it was beginning to sober down. Though Shakespeare could remain with his mind in suspense, his fellows could not. They wanted facts. Again the cry arose "What is Truth?" but this time the jesting Pilates stayed for an answer. "The climate of opinion" is a happy phrase we owe to Joseph Glanvill, of Scholar Gipsy fame. How did men comport themselves in the new climate that was surrounding them? According to their kind: some simply looked back with bitter regret, others forward with eager anticipation, some imitated Mr. Facing-both-ways.

Richard Burton looked back. He was a scholiast born out of due season, and grew old in an age he condemned. Like the melancholy Jaques in many ways, he had a melancholy of his own, compounded of many simples indeed, for his "Anatomy" is a mosaic of quotations. Mark Pattison described the typical scholastic attitude thus, "If a great writer has said a thing, it is so." It reminds one of case-made law, always so foreign to the medical mind. But the authoritarian note was no longer acceptable in the new atmosphere and Burton felt that by any human standard the entire order of the universe was irrational. It has been said that he was filled with hatred, scorn, and derision for the whole scheme of things in which he found himself. What could one do, he protested with tears in his eyes, but laugh? Touchstone and Jaques in one.

John Donne, the famous Dean of St. Paul's, on the other hand, illustrates alike in his life and thought the transition from the sixteenth to the seventeenth century. He was "in certain aspects of mind and training the most mediaeval, in temper the most modern of his contemporaries." As Mr. John Sparrow wrote with deep insight, while still only a schoolboy at Winchester, "despite all vicissitudes of fortune, despite even the apparent changes in his character, Donne himself was always essentially the same. . . . There are two ways of arriving at the pitch of emotion necessary for the production of such writings as Donne's. One is the absolute surrender to pleasure, and the sacrifice of the ordinary standard of morals; the other is the complete banishment of pleasure, and the consistent living up to an ideal. Donne adopted both of these . . ." and "there lingers about him something unexorcised as if Pagan incense were burning in a Christian crypt."

Brought up a Roman Catholic, he had become Anglican by the time he was 24, but his steps to the altar were somewhat devious and faltering. He was worldly and time-serving, ascetic and devout, with equal sincerity. He stood haughtily apart from his contemporaries except Ben Jonson, for he had the scornful indifference of the innovator, regarding himself as destined to inaugurate a new era. He revolted against the conventional and classical imagery of the Renascence, and was as determined to break it up as Wordsworth was to release poetry from Miltonic diction, when it had become outworn through sedulous imitation. Donne experimented with prosody and rhythm like our own Laureate fellow, Robert Bridges. It is significant that there has been of late a great revival of interest in Donne, just as there has been in El Greco. The writings of one have affinity with the paintings of the other. Both can be ascetic and devotional, just as they can be distorted, startling, and bizarre. This reawakened interest is comprehensible if I am correct in my thesis that certain trends of the seventeenth century are reasserting themselves to-day. "Every young poet to-day would like to write like Donne; intensity is the most admired of all qualities. Yet—and there's the rub—so few know what to be intense about—except negative attitudes" (Desmond MacCarthy). Certain it is that modern poets have abandoned the mellifluous line of Tennyson for a condensed allusiveness, an obscurity, a concentration of thought, an imagery drawn from things of everyday life just as Donne departed from Marlowe's mighty line to the same end. Whether beauty has been served thereby must be left to individual opinion. The modernity of Donne's ideas in some ways is shown by the fact that he wrote an essay in favour of voluntary euthanasia in 1624. The essence of his intimate thought is to be sought, however, in his "Devotions on Emergent Occasions" written during a serious illness. Did any writer ever relish an illness so keenly? It certainly gave opportunity for his self-flagellating temperament and it is entertaining to observe how gratified he was when the King sent his own physician to consult upon his case.

A greater and more sympathetic figure than either Burton or Donne was Sir **Thomas Browne**. Like a two-headed Janus he looked both back and forwards. To this peculiarity of his temperament one of the fascinations of his style is due, for it will be observed how frequently a classical phrase or allusion is balanced against an Anglo-Saxon word or homely illustration. Moreover this dualism of phraseology is accompanied by a dualism of thought, which he clearly acknowledged when he said, "Thus is Man that great and true Amphibium, whose Nature is dispos'd to live, not only like other creatures in diverse Elements, but in divided and distinguished worlds."

To this point of view modern philosophy is tending. The materialistic science of the nineteenth century is dead, neo-vitalism died with the recent lamented passing of its greatest exponent, and while the mechanistic theory of life is being pushed further than ever, its protagonists gladly admit that at most it can only attain one aspect of the truth. Thus Sir Thomas Browne joins hands with the twentieth century, though the way in which he expresses this attitude of his mind may give one the impression of scepticism hand-in-hand with credulity. As he said, "Where Truth seems double-faced, there is no man more paradoxical than myself," for he had realised that where a fact or opinion previously widely adopted can be tested by experiment and is not proved correct thereby, you should give it up. But where it is not open to experiment or that method has as yet been insufficiently applied, you are at liberty not to give it up and to doubt the wisdom of those who do. Unlike Bacon who rejected hypotheses, he attempted to use them. The particular fact was important in Bacon's eyes, the general principle in Browne's.

Sir Thomas Browne was an honorary fellow of this college, but it is not correct to say, as is often said, that he became a fellow of the Royal Society. The name "T. Browne" modestly squeezed into a corner of their roll is that of his beloved grandson, to whom he wrote such charming letters. It has been stated on Wilkin's authority that Sir Thomas wrote the Harveian Oration for his son Edward to deliver. The Sloane manuscripts contain this oration in Sir Thomas's writing with references to the lecture theatres in different continental universities which Edward had visited, for on this subject, as his father pointed out, he could tell "more than any other is like to say." But as a matter of fact Edward was never Harveian orator. Perhaps with fatherly pride he had expected him to be, and it is unfortunate that he did not live long enough to see his son occupy our presidential chair, which would have more than compensated for any earlier disappointment.

It was Sir Thomas Browne who enriched our language with the word electricity. That he was himself an experimentalist can be seen from his "Miscellaneous Writings." Mr. Geoffrey Keynes says that he "may be justly compared with his contemporary Robert Boyle in his restless curiosity and his use of the experimental method, though he fell far short of Boyle in his achievement." Dr. Needham however attaches great value to his work on the chemical aspects of embryology which has been quite overlooked, although his originality and genius in this field is hardly less remarkable than in so many others. Harvey's approach to embryology, unlike Sir Thomas Browne's, was in the main morphological, and to-day the biochemical aspect of that subject has pride of place.

On such an occasion as this when we are striving to find "an antidote against the opium of time," Browne's "Urne-Buriall" may strike us with a sudden chill—"The iniquity of oblivion blindly scattereth her poppy, and deals with the memory of man without distinction to merit of perpetuity. . . . Diuturnity is a dream and folly of expectation." Yet it is not entirely true, for were it so, should we be listening to his solemn music to-day? Saintsbury, no mean judge, speaks of "The mixture of shaded sunlight and half-illuminated gloom which makes the charm of his style and habit of expression; its connection with the singular clarity and equity of his temper and judgment is quite unmistakable." How well this corresponds with the description of the man by his intimate friend Whitefoot, "He was never seen to be transported with mirth or dejected with sadness."

He was indeed himself the Great Amphibium, and while he was floating placidly in divided worlds, the great Leviathan pushed on stormily towards a completely materialistic philosophy.

Thomas Hobbes was born in the year of the Armada and lived through the Civil War, the Commonwealth, and the Restoration to within nine years of the Revolution. Much had he seen and known of changes during those more than 90 years, yet he remained unchanging, obstinately set in his opinions. When the Long Parliament began to be active, he fled to France, where he became tutor to the future Charles II. But in 1657 he returned to England because he feared the attitude of the French clergy, who were no more tolerant towards him than the Puritans. He was a friend of Ben Jonson, of Lord Herbert of Cherbury, whose philosophy was diametrically opposed to his, of Descartes, and he knew Galileo. Harvey left him a legacy. He was not only a friend of Bacon's, but acted for a time as his secretary. Yet he never set much store by experiment, and he founded his mechanical theory on Galileo rather than on Bacon. It is a little disconcerting to find that men of such varied culture left him so unaltered. It is also suggestive of some attractive traits in the man that they put up with his truculence. His theory was neither attractive nor flattering, starting as it did from a belief that the whole nature of man is a consistent scheme of selfishness. It was not until he was 40 that he formulated his philosophy on a geometrical basis. I like Aubrey's account of this. In a friend's library "a copy of Euclid lay open at the forty-seventh proposition of the first book. So he reads the proposition. 'By God,' says he, 'that's impossible.' So he reads the demonstration which referred him back to another (and so on) that at last he was demonstratively convinced of that truth. This made him in love with geometry." He wanted to reduce the doctrine of justice and policy in general to the "rules and infallibility of reason after the fashion of mathematics." For him motion was the one reality, all others but "the fancies, the offspring of our brains." From geometry he passed through physiology to moral philosophy believing that "the motions of the mind have physical causes." There is a suggestion of conditioned reflexes and behaviourism in the statement that "the internal motions set up by the action of objects upon the senses become reactions on the external world and these reactions minister to the preservation of the individual." He maintained that the appetites and passions of men are such that unless they be restrained by some power they will always be making war upon one another. Government is a social compact for the sake of peace, and men must give up their rights to one man or one assembly of men. And thus we arrive at the absolute monarch, who has rights but no duties, as the apex of his pyramid. Curiously modern some of these items, even if the sequence is a little obscure—matter as a form of motion, and conditioned reflexes leading up to the conception of a totalitarian state. And this quotation is painfully topical, "Covenants of mutual trust where there is a fear of not performance on either part are invalid." These are the main arguments in his chief and most famous book, "The Leviathan." But though an amateur he could not refrain from controversy with genuine mathematicians and scientists such as John Wallis, the first of Glisson's pupils to proclaim Harvey's discovery in public, and with the great Robert Boyle. In these disputes he was labelled "the greatest of circle-squarers."

There is a logical sequence in his attempt to show that the whole fabric of human life and society is built out of simple elements. It is in his premises that error lies, for "the individual is neither real nor intelligible apart from his social origin and traditions [which] influence his thoughts and motives" (Sorley).

Still, as I have reminded you, certain schools of thought to-day favour this pushing of the mechanistic theory as far as it will go, while recognising, as Hobbes did not, that it must leave a whole system of values untouched. And for good or evil, the totalitarian state is with us to-day. So one cannot help feeling a certain regard for the obstinate old man who stuck to his logic with more than French tenacity, and who was only just spared from seeing the divine right of kings finally perish in this country with the landing of William of Orange.

For throughout the century the doctrine of the divine right of kings had been challenged by a people who were finding their staple intellectual and spiritual food in the authorised version of the Bible. As Fisher says:

> "Here was a people's University. Plunging into this vast miscellany, where all that is most solemn and sublime from the distant east is mingled with the records of a savage antiquity, the peoples of England wandered at their own sweet will, unshepherded and unfettered, and finding always by the way lessons for the conduct of life, some of infinite depth and beauty, but others prompting to gloom, pride and self-sufficiency."

What the nation needed on waking from the heady dreams of the Renascence was what Europe needs to-day—a time of political peace and social calm. But it was not to be. Though knowledge continued to grow, the thoughts and emotions of the people were diverted by class hatred, religious controversy, and political storms. The climate of opinion was overcast with thunderclouds, and Milton's "two-handed engine at the door" stood ready to smite. It has been well said that it was King James's *Bible* that cost his son his head.

I believe that if the Cambridge Platonists *could* have had their way much strife would have been avoided. In the political and theological turmoil of the times their's was a steadying and pacifying influence, but unhappily not sufficiently widespread. Yet Harvey thought little of them. In this matter he was more Royalist than the King.

Their home, both spiritual and material, was Emmanuel College. In 1584 Sir Walter Mildmay obtained a charter of incorporation, purchased the home of the Black Friars which had fallen into ruin after the dissolution of the monasteries, and rebuilt it as Emmanuel. Mildmay was a puritan, and from the first the college had a decidedly puritanical character. He told Queen Elizabeth that "he had set an acorn, which when it becomes an oak, God alone knows what will be the fruit thereof." That acorn grew fast, and Fuller wrote in 1634, "Sure I am at this day it hath overshadowed all the University, more than a moiety of the present masters of Colleges being bred therein." Soon after Fuller wrote this, the influence of Emmanuel was to spread across the Atlantic, for John Harvard migrated thence to Massachusetts and saved a college there from disaster with his father's money to make it the pioneer university in the United States. Mullinger, the erudite, if eccentric, librarian of St. John's College in my undergraduate days, regarded Sherman of Trinity as the founder of the movement, and Henry More who was certainly a leader hailed from Christ's. But all the others, of whom I need only mention Whichcote, John Smith, Cudworth, and Culverwel, were all trained at Emmanuel. Their avowed intention was to bring the Church back to "her old loving nurse the Platonick philosophy." Their Platonism was in Wordsworth's phrase, "reason in her most exalted mood," and has been expressed more fully as "the mood of one who has a curious eye for the endless variety of this visible and temporal world, and a fine sense of its beauties, yet is haunted by the presence of an invisible and eternal world behind or . . . within the temporal and visible" (J. A. Stewart). But they were not mere mystics; they regarded abstention from dogmatism as one of the most effective means of promoting unity and concord. Whichcote held that the inductive method was as calculated to prove effectual in allaying theological contention as it had been in the hands of Galileo and Harvey in their respective fields. He maintained that authority proceeds from right reason, not reason from authority. And further he said, "it ill becomes us to make our intellectual faculties, 'Gibeonites,' hewers of wood and drawers of water for the will and the emotions." No wonder that most of them detested Hobbes's materialistic philosophy and were alarmed at his influence. Though he was intellectually more than a match for them, they had a vision which he lacked.

Though Puritan in origin it would be a mistake to regard them as simply Puritans; theirs was a middle course. They had that wider culture which is sometimes successfully grafted on a puritan stock. Dean Inge in his book on the Platonic tradition says "besides the combative Catholic and Protestant elements in the churches, there has always been (this) third element with very honourable traditions, which came to life again at the Renascence but really reaches" much further back. "The flame which [the Cambridge Platonists] kindled among us was lighted in Italy, when Grocyn and Linacre visited the famous Platonic Academy at Florence." But they received "the treatment, as we know both from history and fiction which those must expect who interpose their persons between two violent combatants. . . . In time of war the prophet and seer are not wanted. Effective partisan cries have to be devised, which will appeal to and be understood by the masses. All fine issues are coarsened."

One must regretfully feel that just as the story of the Reformation would have been very different if Erasmus instead of Luther had been its leader, so would the history of Charles I.'s reign if Roundhead and Cavalier could have listened to the sweet reasonableness of these Platonists. But the scholar is no match for the demagogue at such times.

Yet their labour was not in vain in the intellectual world. Only six months after Henry More entered, Milton left Christ's. We know that he described his academic studies as "an asinine feast of sow thistles and brambles," yet a few years later "Cambridge men were deep in Descartes and some of them in Bacon." A new intellectual life sprang into being and the leaven spread as the Platonists were appointed to responsible positions throughout the University.

I cannot enter the courts of Emmanuel without feeling that something of the cool restraining influence of those Platonists haunts them still. They should be living at this hour. Peace be to their ashes.

We are apt to forget that all the Athenians were not reasonable enlightened people, clearly though their refusal to learn from experience proclaims the fact. In the same way we sometimes forget that the enlightenment of the Renascence never penetrated the popular mind, which remained largely medieval in outlook. Just so to-day we can see what the ordinary man feels and thinks from the letters he is impelled to write to the popular press rather than from the writings of Whitehead and Inge. The great witch controversy of the seventeenth century throws light on the popular mentality, in which, alas, greater minds shared. To us it seems almost incredible that such men as Sir Thomas Browne, Henry More, and Joseph Glanvill should have believed in witches. But we must remember they felt that to doubt the existence of evil spirits implied an equal doubt in the existence of beneficent spiritual forces. In appealing to demonology, they were "tapping a reservoir of traditional supernatural belief which lay deeper in the national consciousness than Christianity itself, and deeper certainly than the new ice-crust of rationalism which now covered it" (Willey).

H. V. Routh explains this obsession in terms of modern psychology by saying, "As men struggled towards a higher level of civilisation, they instinctively accused these pariahs (witches, &c.) of all that . . . progress had branded as accursed, but could not eradicate from the imagination. . . . For many, and in some cases, subconscious motives men wished to believe in witchcraft—and the intellect generally follows the emotions." It was the peaceful penetration of the scientific outlook which ultimately destroyed the belief in witchcraft.

In this matter Harvey was on the side of the angels. We know that he presided over the committee who examined the survivors of the unfortunate Lancashire witches in 1634, and pronounced them free from any of the signs then supposed to indicate a witch. Then there is the amusing story of his being sent by the King to inquire about a witch on Newmarket heath. Harvey pretended to be a wizard and got her to show him her familiar—a pet toad. In her absence he dissected it and found it to be an ordinary toad. He pacified the old woman, exasperated by the loss of her pet by explaining he was the King's physician and had adopted this method of clearing her reputation. One can vividly picture the scene; indeed, if Harvey were the "cholerick little man," as pictured by Aubrey, it is all the more to his credit that he handled the infuriated beldame so gently. Nor does his courtesy in controversy, so rare in those days, support Aubrey's epithet. We may attribute some share in this tolerant attitude of his to the united family that formed the background of his early life. Indeed, throughout they obeyed the request in their father's will to live in unity and mutual help, and one hears an echo of this in Harvey's injunction to our college.

The background furnished by Caius College, St. Bartholomew's Hospital, and our own college has been fully described by others and needs no comment from me save this: we like to think of them in terms of our personal knowledge, but they have all changed, almost beyond recognition, and changed immensely for the better. But until the war, Padua still looked much as it must have done when Harvey paced its colonnaded streets and secluded botanic garden. He must have gazed on Giotto's simple dignified frescoes in the chapel of the arena, and marvelled as we do still at the mingled beauty and learning so enthusiastically expressed by the youthful Mantegna on the pictured walls of the Eremitani. The vast Salone still shelters Donatello's wooden horse and his sculptured high altar responses under the five domes of San Antonio. In the buildings of the university, nicknamed "Il Bo," stands the anatomical theatre where Harvey watched the dissections of Fabricius; that theatre which served as the model for the old anatomical theatre at Cambridge that lasted into my own student days. Just as the spirit of his maturer age is preserved in this college, so in Padua we can best realise the material surroundings of Harvey's youth. Here too we may well imagine he gained that knowledge of art which fitted him to be entrusted with the responsibility of buying pictures in Venice for such a connoisseur as Charles I.

Soon after that historic cannon ball on Edgehill roused Harvey from his book he retired to Oxford and the pursuit of embryology. He had previously gathered much practical lore from the keepers of the royal forests, and a countryman said of him "if he had been as stiff as some of our starched and formall doctors he had known no more than they." It must have been a relief to leave the turmoil behind and to watch the development of the chick in Bathurst's rooms in Trinity. This aspect of his work has quite naturally received less attention in these orations, except for Dr. Herbert Spencer's scholarly exposition fifteen years ago. Since then embryology has advanced in a new direction which makes it fitting to return to the subject for a few moments.

The widest differences of opinion have been expressed concerning his "De Generatione Animalium." Sir George Ent felt like "another Jason, enriched with the Golden Fleece" when he was allowed to carry it off for publication. Some others have regarded is as a splendid failure. The recent critical analyses of its contents by Needham and by Meyer will help to restore the balance between those two extremes. One cannot help feeling that loyalty to a great name has inspired praise lavished by some, and that the work contains much speculation as well as observation.

I said at the outset that the personality of every great man has a certain impact on his own generation. The converse is inescapably true. We may rightly marvel more at the release from contemporary thought which Harvey displayed in his work on the circulation than at his bondage to it as shown in his embryology. The results of the different mental attitudes that characterise the two books may be summed up in Bacon's aphorism, "If a man will begin with certainties he shall end in doubts, but if he will be content to begin with doubts he shall end in certainties." When at the end Harvey said he despaired of understanding development, we may fairly ask whether he did not begin with what he regarded as some certainties.

Yet much of value remains. Harvey stoutly upheld the doctrine of epigenesis against the prevalent theory of preformation It is astonishing what a hold that Chinese box idea of the ovum continued to have even into the early nineteenth century. Harvey's conception of the gradual differentiation of the simple and homogeneous into the complex and heterogeneous showed philosophical insight and anticipated the ideas of the present century. Nor was this all. He anticipated Glisson by a quarter of a century in the generalisation that all living tissues are characterised by a response to stimulation, and he contested the view of his own master Fabricius that the maternal and fœtal circulation directly communicate. And to him we owe the epigrammatic generalisation "ex ovo omnia."

Considering how little Cambridge did for Harvey in his lifetime, I feel in private duty bound to emphasise something of what my university has done in the last sixty years to develop some of his views. Harvey's idea of the intrinsic rhythm of heart muscle was carried to triumphant demonstration by Gaskell, and has formed the basis of the new cardiology. Frank Balfour's evolutionary conceptions of embryology may be out of fashion now, but what a stimulus they gave to the whole of animal morphology. And they were based on epigenesis. Balfour had been dead seven years when I went to Cambridge, but his old department was still lit with the radiance of his enthusiasm. The studies of Walter Heape and of our own Baly medallist, F. H. A. Marshall, have carried on the torch. And the latest phase, the new chemical aspect of embryology, is associated with the name of Joseph Needham, our Oliver-Sharpey lecturer of this year.

I have tried throughout to indicate the ways in which the turmoil of thought in Harvey's time is reproducing itself to-day. In both instances there had been a phase of great and rapid expansion both in thought and in wealth, followed by disillusionment on the intellectual side and greater stringency on the financial. On each occasion old standards were destroyed before adequate new ones could be provided in their place. A new phase of thought is accompanied by a new form of art. If the baroque did not spring from the counter-reformation it was at least greatly fostered by it. The exponents of the new baroque, Picasso and Epstein, appear to express the feelings of the post-war generation more satisfactorily than they do mine. In their influence on younger poets Donne is paralleled by T. S. Eliot. It is not without significance that some modern writers are beginning to justify Machiavelli and his ideal of the domination of a ruthless leader, while Elizabethan and Jacobean thinkers felt the effect of his doctrines to be corrosive and withering. It has been well said that "the sinking of the clear exaltation of Elizabethan dramatic poetry into the sophisticated, satirical conflicting mood . . . of the Jacobean drama had many concurrent causes. The apprehension, regret and disillusionment inevitable to the conscious passing of a long period of high civilisation were not in this case unfounded, and those who had known the great age, even those who had only grown to manhood during its latest years, were touched by them (like the generation that succeeded the Great War) without being able to define their loss in what had passed. Moreover . . . a stage of development in which some transition from wonder and discovery to assessment and criticism was inevitable." The modern parallel unfortunately needs no emphasising. There is however one outstanding difference. Then, the way of investigation by experiment was new and seemed full of hope; now there are murmurs to be heard against science itself. Bacon's utterances have not quite the same thrill. The discovery of facts has not in the long run proved so exhilarating after all (Basil Willey). Science on the one hand offers material comfort, on the other, intellectual abstractions. This leads to a mechanised world without moral direction. Too many men use dangerous machines like toys, as would a child. In the reaction against this we are actually hearing sighs of regret for the passing of the scholiasts, with their strange doctrine that a belief can be metaphysically true, though empirically false. Men grasp at the indeterminacy of the atom to revive the idea of miracles. As in other ages of spiritual doubt and political uncertainty, the cult of astrology, not to mention other strange cults, is becoming fashionable.

Man's brain has not been able to adapt itself quickly enough to the material changes of the last hundred years. Sir Alfred Ewing was saddened in his last years by the use men were making of the inventions he himself had helped to promote. Lowes Dickinson asked if there were a way of escape from the alternatives—shall we allow science to destroy us or shall we destroy it to save ourselves? Such statements however relate to the physical sciences—biology must restore the balance. If we would understand ourselves—a much needed investigation—we must realise that we are subject to the laws of biology. A study of history from the biological angle would contribute towards that understanding.

And of all branches of biology, medicine can play the largest share in the reconciliation of science with ethics. In these latter days medicine is becoming increasingly psychological in its approach to suffering, while developing its scientific armament as much as possible. The field of medicine is ever widening; we can neither remain isolated in our laboratories nor merely stay by the bedside. We are taking a broader view of Harvey's injunction to seek out the secrets of nature, and are becoming one of the leading social services. In that development I am proud to think that this ancient college is now playing an increasingly important part.

Towards the end of his life Harvey wrote to a young medical man that as an explorer his own days were, alas, numbered. "But," said he, "it will always be a pleasant sight to see distinguished men like yourself engaged in this honourable arena." There spoke the true spirit of adventure, glad to hand on the torch to the younger generation. In like spirit, it is good for us, on this, the morrow of St. Luke's Day, to pause amid the rush of life for an hour to join hands with those who have gone before and with those who will come after us. Thus is the real continuity of this college assured.

And so I exhort you in Harvey's own words "for the honour of the profession to continue in mutual love and affection."

VITAMIN-C DEFICIENCY IN ADDISON'S DISEASE

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THE method introduced by Harris et al.[1 2] has provided a simple technique for the diagnosis of vitamin-C subnutrition. A series of patients with Addison's disease have been available in the Manchester Royal Infirmary during the last months, and the opportunity has been taken to investigate some of them from the point of view of vitamin-C deficiency by means of the technique of urine titration. The results obtained in three cases are described here.

The *technique* employed was essentially that of Harris and Ray. In all cases, one-tenth of the volume of glacial acetic acid was added to the urine immediately it was voided, and the titration carried out within a short time or in the case of overnight specimens within a few hours of passing. In actual fact, titrations were carried out on each individual sample during the day, but for the sake of brevity only the average concentrations during the 24-hour period are given in the Tables, together with the total 24-hour excretion. In all cases the 24-hour period is taken from noon of the date given to noon of the following day. The administration of the test dose therefore precedes the beginning of the collection of the day's urine. All the patients were women, and very occasional samples may have been missed. For this reason a somewhat long control period was necessary before giving the graded test dose.

CLINICAL DETAILS

The following notes are abbreviated since the cases will be described fully in another paper embodying a report to the Therapeutic Trials Committee of the Medical Research Council.

CASE 22.—A housewife, aged 44, was admitted to hospital on June 18th, 1935. She had been in good health until six months previously when she began to feel tired and short of energy. Attacks of vomiting followed, and increasing pigmentation of the skin. There was loss of weight, asthenia, and amenorrhœa for six months.

The skin was a very dark brown, the hair was black, and the eyes brown. Pigmentation was most intense on the skin over the elbows, knuckles, and knees, round the mouth and eyes, and over the malar eminences, shoulders, and lower abdomen. The buccal and vaginal mucous membranes also showed patchy pigmentations; the areolæ were not pigmented. Nothing abnormal was found in the chest, abdomen, and nervous system. Pulse: regular, poor volume, 96 per min. Temperature 97° F. Blood pressure 90/60. Weight 6 st. 4 lb. Urine: traces of albumin and diacetic acid. Blood: urea, 60 mg. per 100 c.cm.; sugar, 80 mg.; chlorides, 445 mg.; sodium, 312 mg.; inorganic phosphate, 5·3 mg. Basal metabolic rate: deceased by 11 per cent. Blood count: red cells, 4,224,000; hæmoglobin, 74 per cent.; colour-index, 0·9; white cells, 8200 (polymorphonuclears 47·0, lymphocytes 49·5, large mononuclears 3·0, eosinophils 0·5, basophils nil); aniso- and poikilo-cytosis slight; nucleated red cells nil; platelets scanty. Fractional gastric analysis showed achlorhydria gastrica. X ray examinations of the chest and suprarenals showed nothing abnormal.

The patient was under observation in hospital from June 18th, 1935, to Feb. 14th, 1936. During that period her systolic blood pressure varied between 50 mm. at the crises to about 100 mm. (on one occasion 111) during the remissions. Throughout this time also her temperature was somewhat irregular, between 97°–99° F. with occasional rises above 100° F. Her lowest recorded weight was 5 st. Extensive biochemical and clinical investigations were carried out regularly and will be reported elsewhere. She was treated with suprarenal cortical extracts administered daily, either intravenously or intramuscularly, and survived several crises in which she had been critically ill. Later, during the periods of the ascorbic acid experiments described herein, she was receiving 10–20 c.cm. suprarenal cortical extract (Cortin) daily, but no salt, and her systolic blood pressure remained between 80–95 mm. Her weight at this time was increasing (5 st. 4 lb.). She was in quite good condition and definitely improving, being free from gastro-intestinal symptoms and less asthenic.

TABLE I. (Case 22)

Date.	Av. conc. A.A.* in urine (mg. per c.cm.)	24-hour total (mg.).	Ascorbic acid therapy.	Date.	Av. conc. A.A.* in urine (mg. per c.cm.)	24-hour total (mg.).
Nov. 13	0·00485	2·57	Control period.	Dec. 1†	0·148	46·6
14	0·0083	2·25		2	0·088	40·0
15	0·0073	1·98		3	0·042	23·7
16	0·006	2·44		4	0·03	8·6
17	0·0065	2·12		5	0·03	10·0
18	—	—		6	0·017	6·58
19	0·008	2·02		7	0·01	1·32
20	0·0056	1·48		8	0·008	7·4
21	0·0076	3·09	300 mg. orally.	9	0·0096	5·17
22	0·0135	3·13		10	0·0057	5·7
23	0·0145	4·0		11	0·005	5·0
24	—	—		12	0·0073	4·39
25	0·035	14·0		13	0·008	3·66
26	0·065	25·4	450 mg. orally.	16	0·0075	4·76
				17	0·01	4·05
27	0·075	12·0	500 mg. orally.	18	0·008	2·2
28	0·124	21·3				
29	0·127	40·6		Jan. 25	0·0077	4·06
30	0·17	72·4				

* Av. conc. A.A. = Average concentration ascorbic acid in urine.
† From Dec. 1st ascorbic acid therapy was discontinued.

Throughout the illness the patient's urinary volumes were small, being 300–500 c.cm. daily. On account of her low weight the initial test doses of ascorbic acid were graded. The daily urinary excretions of ascorbic acid are shown in Table I. The diagnosis of Addison's disease was confirmed on Feb. 14th when she died suddenly from a first and only paroxysm of auricular fibrillation with cardiac muscle failure. Autopsy showed extreme atrophy of both suprarenal glands but no evidence of tuberculosis.

CASE 23.—A housewife, aged 32, was admitted to the Manchester Royal Infirmary on Jan. 14th, 1936, complaining of loss of energy, extreme weakness, backache, and increasing pigmentation of the skin. These symptoms had been coming on gradually for 18 months during which period she had been subject to attacks of nausea and vomiting. She became constipated but menstruation was not affected. Weight was lost and finally she was unable to carry on her household duties.

She was of very slim build (weight 7 st. 12 lb.) and moderately asthenic. Pulse: 72, regular. Blood pressure 125/75. There were old scars in the left cervical and submastoid regions where tuberculous glands had been excised many years previously. The skin was very dark brown, especially on the chest (areolæ and axillæ), face, hands, wrists, and knees; there were small pigmented patches in the buccal and vaginal mucous membranes. Eyes dark brown, hair almost black; previously she had been a brunette. *Basal metabolic rate*: decreased by 2 per cent. Fractional gastric analysis showed hypo-acidity (maximum titre 17 units HCl at 1¾ hours). Blood count: red cells, 4,960,000; hæmoglobin, 93 per cent.; colour-index, 0·93; white cells, 12,600 (*polymorphonuclears* 47·5, lymphocytes 46·5, large mononuclears 6·0, eosinophils nil, basophils nil); aniso- and poikilo-cytosis slight; nucleated red cells nil; platelets in moderate numbers. Blood: urea, 24 mg. per 100 c.cm.; chlorides, 460 mg.; sodium, 330 mg.; inorganic phosphate, 3·8 mg.; sugar, 77 mg. Wassermann reaction: negative. X ray examinations: chest negative; loins showed an irregular calcification at the upper pole of the left kidney with slight extension along the outer border; faint trace of calcification above the upper pole of the right kidney.

During the first few days after admission to hospital the patient had further attacks of nausea and vomiting, while the pigmentation became more conspicuous. The systolic blood pressure fell to 95–105 mm. and the weight to 7 st. 6 lb. There were no gross changes in the biochemical findings. She was stabilised with suprarenal cortical extract (cortin) at 10 c.cm. intramuscularly daily in the first stages, later 5 c.cm. on alternate days and then every third day. A further gradual reduction in dosage to 5 c.cm. per week became possible with the exhibition of sodium chloride (15 g. daily). Later cortin was discontinued entirely. During the whole period of the ascorbic acid test she received a daily dose of 10 c.cm. cortin and no salt; at this time the weight was 7 st. 10 lb. The urinary excretion of ascorbic acid is shown in Table II. The volume of urine excreted was 800–1000 c.cm. daily. The maximum concentrations of ascorbic acid reached 0·4 mg. per c.cm. on Feb. 1st, 1936, and 0·47 mg. on Feb. 2nd—on each occasion four hours after the test doses.

TABLE II. (Case 23)

Date.	Av. conc. ascorbic acid in urine (mg. per c.cm.).	24-hour total (mg.).	Therapy.
Jan. 23	0·006	4·63	Control period.
24	0·0068	4·68	
25	0·013	10·61	
26	0·0091	8·45	
27	0·0126	11·43	
28	0·0095	4·58	
29	0·0105	7·77	500 mg. ascorbic acid per os at noon.
30	0·01	5·28	
31	0·057	42·2	
Feb. 1	0·26	132·2	
2	0·205	85·1	
3	0·034	35·55	Ascorbic acid discontinued.
4	0·016	13·06	
5	0·029	24·96	
6	0·014	18·1	
7	0·0089	7·34	
10	0·0077	6·50	
April 28	0·0068	6·50	High vitamin-C diet.
June 16	0·018	29·0	

This patient is still alive and has improved very much on treatment with salt and very occasional injections of cortin. Her weight is 8 st. 12 lb. and her blood pressure 120/80.

CASE 24.—A housewife, aged 48, was admitted to hospital on Nov. 14th, 1935. She gave a history that she had been losing weight for twelve months, and had lost over 4 st.; the rate of loss had recently increased. About nine months ago she began to complain of increasing weakness and fatigue and noticed that her complexion was becoming increasingly sallow. She had shooting pains in the head and aching pains over the sacrum. Her appetite became poor, and there was vomiting occasionally, at intervals of about four weeks. The bowels were constipated. Micturition was normal; menstruation irregular.

On examination it was clear that the patient had lost much weight, for the skin of the abdomen was loose and hung in loose folds below the vulva when she was erect. She was much pigmented, especially around the eyes, over the cheeks, elbows, knuckles, shoulders, knees, and abdominal wall, and on the insides of the thighs. The nipples were very dark. There was pigmentation on the palate, while the buccal and the vaginal mucous membranes were also pigmented. The teeth were in poor condition. The pulse was rapid, of fair volume and regular, *rate* 92. *The temperature varied from* 97° to 98° F. The heart was normal in size and the sounds were also normal. Blood pressure 120/70. Weight 7 st. 12½ lb. The lungs presented no unusual features. In the abdomen, *liver, spleen, and kidneys were not palpable although* the abdominal wall was extremely lax. There were no enlarged lymph glands. Nothing abnormal was found in the central nervous system. Blood: urea, 20 mg. per 100 c.cm.; chlorides, 460 mg.; sodium, 328 mg.; *inorganic* phosphate, 4·0 mg; sugar, 81 mg. Basal metabolic rate: increased by 4 per cent. Fractional gastric analysis showed achlorhydria gastrica. Glucose-tolerance test 77, 95, 113, 105, 100, 91 mg. glucose respectively at half-hourly intervals. X ray examinations of the chest and loins did not disclose anything abnormal.

The patient was treated with suprarenal cortical extract (cortin) commencing on Nov. 23rd with 10 c.cm. daily, but increasing the dose on the 27th to 20 c.cm. for three days. The treatment continued thereafter was 10 c.cm. daily until Dec. 25th. During this period the systolic blood pressure remained about 100–105 mm., the biochemical findings remained within normal limits. Afterwards the dose of cortin was gradually reduced and 15 g. sodium chloride given daily. The patient's subsequent history has been extremely satisfactory. She has continued to improve, has put on weight and is now only taking salt by mouth and an occasional dose (5 c.cm.) of cortin intramuscularly. Her systolic blood pressure is now maintained at 120–124 mm. At the time of the test shown in Table III. her weight was 7 st. She passed 500–900 c.cm. of urine daily. The maximum concentration of ascorbic acid in the urine after the test doses had been given was 0·66 mg. per c.cm. five hours after the test dose on Dec. 6th (see Table III.). Estimations had to be discontinued on Dec. 8th because menstruation recommenced.

TABLE III. (Case 24)

Date.	Av. conc. ascorbic acid in urine (mg. per c.cm.).	24-hour total (mg.).	Therapy.
Nov. 25	0·0069	5·72	Control period.
26	0·0058	4·89	
27	0·0076	3·37	
28	0·0088	5·19	
29	0·0086	5·18	Received 500 mg. ascorbic acid per os at noon.
30	0·007	5·58	
Dec. 1	0·0068	6·20	
2	0·010	6·96	
3	0·018	12·3	
4	0·093	58·2	
5	0·108	108·0	
6	0·222	208·3	
7	0·23	148·1	
8	0·106	Menstruation commenced.	Ascorbic acid discontinued.
17	0·017	10·6	
18	0·017	9·37	
June 23	0·007*	10·6*	Moderate vitamin-C diet.
July 14	0·014	15·6	

* *Results certainly too low, owing to late addition of acetic acid.*

RESULTS OF EXCRETION TEST

The figures given in Tables I.–III. indicate a considerable degree of vitamin-C deficiency, particularly in Case 22. In all three there was a subnormal concentration of ascorbic acid in the urine and very low 24-hour excretion during the control period. This was followed by responses, of varying slowness, to the repeated oral administration of large test doses of the synthetic *l*-ascorbic acid. When therapy was discontinued the increased excretion fell rapidly to values characteristic of the control period. (The values and findings reported here are very similar to those reported by Siwe[3] on one case of Addison's disease.) In one case (No. 23) the excretion was measured six weeks after discharge from hospital, after the patient had added six oranges per day to her diet during the previous two weeks. Her urinary concentration was even then still low and the 24-hour excretion similar to her control period. Seven weeks later (June 16th), when the patient's clinical condition was tremendously improved and she had been taking a high but reduced vitamin-C diet in the form of three oranges per day, her urinary concentration had risen to 0·018 mg. per c.cm. and the 24-hour excretion to 29 mg. (see also Case 24, Table III.).

It is interesting to note that the degree of subnutrition paralleled the severity of the disease in these three cases investigated, in so far that Case 22 was the most acute of the series and showed the highest degree of subnutrition, while Case 23 was the least severe and showed the lowest.

DISCUSSION

The significance of the findings is not clear, but a number of possibilities present themselves.

(1) Subnutrition may be a feature of the disease, as is suggested by the fact that that it runs parallel with the severity of the symptoms. On the other hand it may simply be an entirely non-specific index of the extremely low state of health of the patient, since it is known that many hospital cases show vitamin-C deficiency. Against this is our own observation that patients taken at random in the wards did not show the vitamin lack, though the complete technique of the test dose was not carried out on these cases.

(2) Lack of absorption in the gut may be a limiting factor. Against this, however, is the fact that in our own cases the gastro-intestinal symptoms of the disease were under control during the experimental period, while the response to oral administration of ascorbic acid is seen in the Tables. It was not desirable to give injections of ascorbic acid to our patients, for they were receiving very frequent injections of cortin.

(3) There may be an increased need for, or an increased destruction of, the vitamin. Such increased destruction has been shown in different febrile conditions by a number of observers—e.g., Drigalski,[4] Schroeder,[5] Faulkner,[6] Abbasy et al.,[2] Harde et al.,[7] Bullowa et al.[8] Pyrexia, however, is not a feature of Addison's disease except in the terminal few days of the tuberculous cases. On the contrary the temperature is usually subnormal and the general metabolism is on a much reduced scale.

(4) It is well known that both the cortex and the medulla of the normal adrenal gland have a high content of ascorbic acid compared with other body organs (Harris and Ray[9]). These authors have, in fact, pointed out that, in the guinea-pig at least, the adrenals cannot be regarded as a body store for ascorbic acid, and a similar conclusion was reached by Beznák and Hariss.[10] The determinations carried out on human organs by Yavorsky et al.[11] are in agreement with this, so that it is not possible to relate the vitamin deficiency reported here to lack of storage in the damaged adrenals.

(5) The significance of the normally very high ascorbic acid content in the adrenals has given rise to speculation. Two suggestions have been made: (*a*) That it is concerned with the maintenance of a correct state of oxidation-reduction potential in the adrenals, and would thus serve to stabilise both the medullary hormone (adrenaline) and the cortical hormone (cortin). This view has been taken by Vars and Pfiffner[12] (see also King[13]) but lacks direct evidence. (*b*) That it is concerned in the regulation of skin pigmentation. This suggestion will be considered in a separate section.

VITAMIN C AND PIGMENTATION

Since the isolation of hexuronic acid by Szent-Györgyi[14] in 1928, and its identification with vitamin C, after which it was renamed "ascorbic acid," much work has been carried out to define a relationship between this substance and the formation of skin pigment in abnormal amounts. Szent-Györgyi himself wrote in 1930: "Hexuronic acid completely inhibits the formation of pigment in all systems in which a melanoid pigment is formed through the oxidation of a phenol. . . . The absence of hexuronic acid in Addison's disease could thus give a clear explanation of the mechanism of pigment formation." (See also Szent-Györgyi.[16]) Abderhalden [17] has shown in vitro an inhibition of pigment formation from adrenaline and from *l*-3 : [illegible] ("dopa") by ascorbic acid bot [illegible] the addition of the enzyme tyrosinase. Schroeder [18] using slices of guinea-pig ear has shown inhibition of pigment formation from dopa in the presence of ascorbic acid; Grüneberg and Schade [19] have made the same observation, and believe that the point of protection is the "melanogen" itself, and the effect is not due to inhibition of an enzyme. On the other hand Jadassohn and Schaaf [20] failed to affect an experimentally produced chloasma uterinum in guinea-pigs with ascorbic acid. Less to the point is the failure of Drigalski [21] and Tenchio [22] to inhibit pigmentation by ultra-violet light in normal subjects on diets rich in vitamin C, though Schade [23] and Hoff [24] have since claimed that such inhibition occurs. Morawitz [25] states that the pigmentation of Addison's disease was strikingly diminished in three cases by oral administration of adrenal cortex, though other symptoms of the disease were unaffected. A "chloasmatic melanosis" of scurvy was successfully relieved by orange and lemon juice therapy. Morawitz [25] suggests the possibility of a pigment vitamin though he leaves open the question as to whether it is identical with ascorbic acid. (It is likely of course that his adrenal cortical extracts contained ascorbic acid but no cortin.) Hoff [24] has made similar claims for the alleviation of pathological pigmentation in scurvy and Addison's disease by oral and intramuscular ascorbic acid therapy.

Our own experience has been different from this. The pigmentation of cases reported here did not show any appreciable change during the test period of intensive oral ascorbic therapy. It is possible that defective absorption may have contributed to this negative effect, but it was not considered desirable to give any further intramuscular treatment at this time. It should be noted that the patients were steadily getting better during the time of the tests, as a result of vigorous intramuscular cortin therapy.

Since discharge from the infirmary Cases 23 and 24 have received a high vitamin-C diet (3–6 oranges per day), and have had administered intramuscularly small (2·5 c.cm.) doses of cortin at irregular intervals of several weeks. It has been noticeable in both cases during the last three months that the pigmentation has much decreased. Whether this improvement is to be related in any way to the high vitamin-C diet (it is noteworthy that the urinary vitamin-C excretion has now reached "normal" levels) or to the gradual remission of the disease under the very small doses of cortin now being given, it is, of course, impossible to say. Further observations are necessary on this point.

SUMMARY

Three patients with Addison's disease have been shown, by means of the test described by Harris and Ray, to suffer from vitamin-C subnutrition. The degree of subnutrition parallels the severity of the illness. The possible significance of the finding and the relationship of vitamin C to pathological pigmentation is discussed.

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ŒSTRIN IN TOXIC GOITRE

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THE frequent enlargement of the thyroid in women during puberty, pregnancy, lactation, and the menopause has attracted the attention of physicians for centuries, and suggested an inter-relationship between the thyroid gland and the gonads. It is doubtful, however, whether this relationship is as definite as it appears, and it is certainly far from being clear-cut. Irregularities of menstruation, amenorrhœa and even menorrhagia, are common symptoms in toxic goitre, but they are not uncommon in myxœdema, especially menorrhagia.[1] Rogers [2] observed that the ovaries in all his cases of toxic goitre were large and tender, and that menstrual disorders were present in all. Moebius,[3] however, considered that such symptoms were no more frequent in toxic goitre than in any other equally serious disease; my own impression is in agreement with this view. Rogers [2] has described acute exophthalmos following the removal of one or both ovaries, but such a sequence is probably fortuitous, considering the extreme rarity of such a condition and the frequency of ovariectomy. On the other hand, the occurrence of sexual infantilism in cretinism, of impotence, sterility and even atrophy of the genitalia in myxœdema, of atrophy of the gonads after experimental thyroidectomy in animals, and the amelioration of these conditions by the administration of thyroid [4] are evidence that adequate secretion of the thyroid is essential for the normal development and function of the sexual glands. Yet, to complicate the picture, sterility and sexual atrophy also occur in toxic goitre.[4] From the clinical evidence there is no doubt that the gonads are affected by the thyroid, but it is not so certain that the thyroid is affected by the gonads.

EXPERIMENTAL STUDIES ON INTER-RELATIONS OF THE THYROID AND GONADS

Experimental work on the effect of gonadectomy on the thyroid gland is controversial. In 1933 Andersen and Kennedy[5] reviewed the published papers on this subject up to date and contributed well-controlled experiments of their own. Most of the published work has been performed on rabbits, guinea-pigs, and rats, and the general impression gained was that gonadectomy was followed by atrophy of the thyroid gland. In their own experiments on rats Andersen and Kennedy confirmed this impression, and found a definite atrophy of the thyroid in all their animals eight weeks after the operation. Histologically the thyroid follicles were smaller than those of the controls, contained denser colloid, and were surrounded by low or flat epithelium. In eunuchs the thyroid gland is also said to be atrophic. Marine[6,7] was of the opinion that removal of the gonads in animals probably tended to decrease thyroid activity, but that a direct relationship was doubtful. Aron and Benoit[8,9] however observed activity of the thyroid after castration in young guinea-pigs, and also in cocks and ducks. More recently Loeser[10] has repeatedly found hyperplasia of the thyroid in guinea-pigs following removal of the ovaries. It is difficult to reconcile the conflicting results that have been obtained in these experiments.

Within the last decade it has been clearly shown that the function of the thyroid gland is dependent to a large extent on the integrity of the anterior pituitary, and experimental hyperthyroidism may now be produced in animals, especially the rabbit and the guinea-pig, by the daily injection of extracts of the anterior pituitary containing a thyroid stimulating hormone. Any action, therefore, of the gonads on the thyroid may be indirect through the anterior pituitary. It is well known that castration is followed by enlargement of the pituitary and that the operation in women leads to an increase in the production of anterior pituitary gonadotropic hormone, more especially the follicle-stimulating principle. Moore and Price[11] have advanced the hypothesis that gonadal hormones (œstrin) suppress pituitary function, and Aron and Benoit[8] have performed interesting experiments in this respect. They found that castration of young guinea-pigs was followed by thyroid hyperplasia, and that the serum or urine of the castrate injected into a young guinea-pig showed the presence of anterior pituitary thyrotropic hormone, in that it caused hyperplasia of the thyroid of the recipient. They concluded from their experiments that gonadectomy in the male or female brings about a notable increase of thyrotropic hormone and hence of thyroid activity, and that an internal secretion of the gonads is capable either of inhibiting the secretion of thyrotropic hormone or of preventing its effect on the thyroid. Similar conclusions were reached by Loeser[10] and by Kippen and Loeb.[12]

Experiments on the effect of the administration of œstrin on the thyroid gland of laboratory animals have likewise produced conflicting results. Most investigators have observed a flattening of the epithelium and an increase in colloid, significant of hypofunction, others have observed no noticeable change, and others a hypertrophy of the gland. These different effects, according to Marine,[7] may probably be explained by the varying periods of œstrin administration, for Tagliaferro[13] found that if œstrin were administered for 5–10 days, enlargement of the thyroid resulted, but if the administration were continued for 20 days or more the opposite effect was produced. Aron and Benoit,[14] following up their work on the effect of gonadectomy on the thyroid and on the production of thyrotropic substance by the pituitary, injected simultaneously into young guinea-pigs a single dose of thyrotropic extract and one or several large doses of œstrin, and found that the action of the anterior pituitary extract on the thyroid was diminished or prevented. Similarly, other investigators have found that the injection of large doses of œstrin decreases the amount of growth,[15 16] gonadotropic[15 16 17] and diabetogenic hormones[18 19] produced by the anterior pituitary.

Before proceeding with the clinical application of œstrin in the treatment of toxic goitre, I repeated the experiments of Aron and Benoit on its effect on the thyrotropic hormone in a much smaller batch of animals. The results are in agreement with theirs, in so far as the thyroid hyperplasia consequent on the action of thyrotropic hormone was diminished, but not completely prevented.

Four guinea-pigs, weighing about 300 g., were injected daily for 12 days with 1 c.cm. of acid extract of anterior pituitary powder (pregnant cows: Organon), prepared according to a modified method of Loeb and Bassett.[20] At the same time each received daily subcutaneous injections of 2000 international units (I.U.) of dihydroxyœstrin (Dimenformon, Organon) for the same period. Four controls of approximately the same weight received daily 1 c.cm. of anterior pituitary extract only for 12 days. On the thirteenth day both groups were sacrificed. The thyroid glands of the controls showed hyperplasia to a marked degree, whereas in the animals which received œstrin the hyperplasia was either slight or moderate.

The conclusion drawn was that under the conditions of the experiment œstrin had a slight but definite antithyrotropic effect.

CLINICAL RESULTS

In view of these experiments it was considered that the administration of œstrin in large doses to patients with toxic goitre was worthy of a trial. This form of therapy was used in six women with typical symptoms and signs of toxic goitre and without any complicating factors such as auricular fibrillation or diabetes mellitus. Their ages ranged from 20 to 56, two having passed the menopause. All except one (Case 6) had received iodine from their private doctor before they came under our observation. Because a patient with toxic goitre will improve so considerably with rest in bed alone, they were kept in bed for a preliminary period of 14–32 days without any medication before the administration of œstrin was begun. Even this preliminary period may have been too short in some cases, but we had to take into consideration the fact that a longer one would have meant a more protracted stay in hospital than would have been agreeable to the patient. In choosing the cases for observation inquiries were made whether the patient would be content to remain in hospital for the length of time necessary; to attempt observations on a person who for domestic or other reasons required as short a stay in hospital as possible would be a waste of time, as such a patient would be constantly fretting and thus invalidate the result.

While under observation the patients were weighed and estimations of the basal metabolic rate made once or, usually, twice a week. Four patients received intramuscular injections of 50,000 I.U. dihydroxyœstrin (dimenformon) daily for 12 days in two cases (Nos. 1 and 2) and for 21 days in the other two (Nos. 3 and 5). Two patients (Nos. 4 and 6) received by mouth 250,000 I.U. ketohydroxyœstrin (Menformon, Organon) daily for 21 days in divided doses of 50,000 units five times a day. One of these patients (No. 4) felt nauseated on several occasions while receiving menformon and on one day vomited several times. This woman, however, had had attacks of nausea at intervals before admission. None complained of abdominal pain or discomfort while receiving œstrin. The period of observation was too short to reach any definite conclusion concerning its effect on menstruation.

The effect of œstrin on the clinical condition of these women was slight; in fact, any improvement which occurred could well be accounted for by the prolonged rest in bed. There was no dramatic response such as is obtained in a patient who is receiving iodine for the first time. Some patients said that they felt less nervous, in others there was a slight decrease in pulse-rate and in pulse range, in others there was some gain in weight. The exophthalmos, size of the thyroid, tremor, moistness of the skin and basal metabolic rate, however, remained practically unchanged.

The following are summaries of the case-histories, with details of the pulse-rate, body-weight, and basal metabolic rate before and during treatment.

CASE 1.—Aged 20, single, no occupation. At the age of 14 had pulmonary tuberculosis with positive sputum, healed with sanatorium treatment. Seven months' history of faintness, loss of weight, palpitations, dyspnœa, headaches, emotional instability, some swelling of neck. Given iodine by private doctor and received X ray treatment to thyroid with improvement. Three months later, collapse and delirium for one day following tooth extraction; recovered but marked dyspnœa and palpitations on exertion persisted. Admitted to surgical ward for partial thyroidectomy, but immediately before operation there was such a rapid increase in pulse-rate that operation was postponed. Menses regular, heavy loss. Previous history: no worries. Family history: sister, aged 17, died of toxic goitre. On examination: nervous; fine tremor of hands; slight exophthalmos; tonsillar remains slightly infected; thyroid diffusely enlarged and firm; heart overacting; blood pressure 155/65.

Admitted Dec. 5th, 1935. Received 50,000 I.U. of dimenformon intramuscularly daily from Dec. 19th to 30th inclusive.

Date.	Pulse-rate.	Body-weight (lb.).	B.M.R. (per cent.).
Dec. 7th	120–156	114	+35
" 14th	100–130	112	+32
" 18th	100–135	112	+32
" 21st	110–140	112	+27
" 28th	90–126	112½	+27
Jan. 1st	90–126	112½	+40
" 4th	100–130	112½	+40

Remarks.—Menstruation started on Jan. 6th, a few days late, and continued till the 8th. Œstrin appeared to have little effect on her menses. After œstrin therapy patient said that she felt less nervous, but there was no change in physical signs. On Jan. 17th, partial thyroidectomy by Mr. Geoffrey Keynes, with marked improvement.

CASE 2.—Aged 30, married, housewife. Five years' history of swelling of neck, dyspnœa on exertion, loss of weight (14 lb. in four months), nervousness, sweating. Received iodine from private doctor. Four years later dyspnœa increased, severe palpitations, very nervous and tremulous, tired at night. Menses regular, scanty flow. Habits: no interests, little to do, few friends, home life happy, no worries. Family history: mother and sister had simple goitre. On examination: nervous; skin warm and moist; fine tremor of hands; exophthalmos; tonsils healthy; thyroid diffusely enlarged and firm; heart overacting; B.P. 156/72.

Date.	Pulse-rate.	Body-weight (lb.).	B.M.R. (per cent.).
Jan. 2nd	108–120	110½	+70
" 14th	100–110	103	+56
" 16th	80–105	103	+55
" 18th	90–105	103½	+55
" 23rd	80–106	105	+30
" 26th	86–110	106	+57
" 30th	90–100	104	+46
Feb. 2nd	84– 94	104	+40

Admitted Dec. 31st, 1934. Received 50,000 I.U. dimenformon intramuscularly daily from Jan. 21st to Feb. 1st, 1935, inclusive.

Remarks.—Menstruated from Jan. 4th to 6th; no further menstruation while under observation (discharged Feb. 27th, 1935). Possibly slight improvement during and after œstrin administration: quieter, less nervous, some fall in pulse-rate and basal metabolic rate, all of which may have been due solely to rest in bed. No definite change in condition of skin, tremor, exophthalmos, size of thyroid or body-weight. On Feb. 15th, 1935, partial thyroidectomy by Mr. Keynes, with marked improvement.

CASE 3.—Aged 38, married, housewife. Two years' history of dyspnœa and palpitations on exertion, nervousness, sweating, staring of eyes, easily tired, swelling of ankles, loss of weight. Six months before admission received iodine and later X ray treatment to thyroid with no improvement. Menses regular, lasting one day; before present illness lasted one week. Lost 28 lb. in weight in two years. Previous history: no worries. Family history: two sisters had toxic goitre and died of lobar pneumonia. On examination: nervous; skin moist; slight exophthalmos; tonsils healthy; fine tremor of hands; thyroid diffusely enlarged; heart overacting, occasional extrasystoles; B.P. 120/65.

Admitted April 15th, 1936. Received 50,000 I.U. dimenformon intramuscularly daily from May 5th to 24th inclusive.

Date.	Pulse-rate.	Body-weight (lb.).	B.M.R. (per cent.).
April 22nd	96–110	93	+23
" 25th	90–100	94	+62
" 29th	92–120	96	+41
May 2nd	102–120	96	+45
" 6th	104–120	96	+39
" 9th	100–120	97	+44
" 16th	90–100	96½	+43
" 20th	98–100	97	+38
" 23rd	92– 98	98	+37
" 27th	86–108	99	+26
" 30th	84–108	100	+42

Remarks.—On May 8th and 15th had an attack of paroxysmal auricular fibrillation which lasted all day. Did not menstruate while in hospital. No response to dimenformon. On June 6th, partial thyroidectomy by Mr. Basil Hume, with considerable improvement.

CASE 4.—Aged 40, single, occupied in housework. Six months' history of nervousness, tremor of hands, dyspnœa and palpitation on exertion, sweating, tiredness, loss of weight, anorexia, headaches, and nausea with teichopsia. Three months later, exophthalmos and swelling of neck, more marked when menstruating. Menses regular. Received iodine, but forced to discontinue after ten days because of consequent rash and digestive trouble. Previous history: no worries; 18 months before admission, removal of Fallopian tubes and the whole of one and a half of the other ovary. No family history of goitre. On examination: nervous, restless; exophthalmos; fine tremor; chronic tonsillitis; thyroid diffusely enlarged and soft; heart overacting. B.P. 150/80.

Admitted on Jan. 2nd, 1936. Received 50,000 I.U. menformon five times daily by mouth from Jan. 20th to Feb. 9th inclusive.

Date.	Pulse-rate.	Body-weight (lb.)	B.M.R. (per cent.)
Jan. 7th	100–120	102	+62
" 11th	100–120	101	+74
" 15th	98–114	100	+60
" 18th	100–116	101	+60
" 22nd	90–104	101	+79
" 25th	90–100	103	+67
" 29th	98–100	103½	+71
Feb. 1st	98–100	104	+74
" 5th	98–104	105	+62
" 8th	90–100	107½	+62
" 11th	90– 98	—	+60

Remarks.—On the two days following the beginning of menformon administration (Jan. 21st and 22nd) she felt sick. On Jan. 28th, nausea all day and vomited four times. Did not menstruate while in hospital. Towards the end of menformon treatment, patient said she felt less nervous and there was some fall in pulse-rate. Clinical condition and B.M.R., however, unchanged. On March 6th, 1936, partial thyroidectomy by Mr. Keynes, with marked improvement.

CASE 5.—Aged 49, single, cook-housekeeper. Nine months' history of tiredness, palpitations on exertion, and swelling of neck. One month later "influenza"; after this, weakness, nervousness, tremor of hands, dyspnœa, sweating, hot flushes. Received iodine from private doctor. Loss of weight (35 lb. in seven months). Menses regular till cessation six months before admission. No worries. No family history of goitre. On examination: thin, nervous, rather restless; skin moist; no exophthalmos, no stare; tonsils healthy: marked tremor of hands; thyroid diffusely enlarged; heart overacting; B.P. 140/82.

Admitted June 24th, 1935. Received 50,000 I.U. dimenformon intramuscularly daily from July 25th to August 14th inclusive.

Date.		Pulse-rate.		Body-weight (lb.).		B.M.R. (per cent.).
July 1st	..	92–112	..	106	..	+75
„ 10th	..	90–106	..	106¼	..	+47
„ 19th	..	90–100	..	104½	..	+36
„ 22nd	..	90–104	..	105	..	+50
„ 25th	..	90–108	..	105	..	+46
„ 29th	..	90–100	..	107	..	+34
Aug. 1st	..	90– 96	..	108	..	+33
„ 8th	..	84– 92	..	119	..	+61 ?
„ 15th	..	84– 94	..	117	..	+24

Remarks.—Possibly slight improvement in clinical condition while receiving dimenformon; fall in pulse-rate and B.M.R., and considerable gain in weight. It appears that the administration of œstrin was accompanied by some improvement in this case. On Sept. 12th partial thyroidectomy by Mr. Hume, with considerable improvement.

CASE 6.—Aged 56, single, engaged in housework. Twelve years previously her mother had committed suicide which upset patient a great deal. Three years later patient's sister died of toxic goitre which developed after mother's death. One year later swelling of neck; no other symptoms. Two years later (six years before admission) gradual onset of tiredness, weakness, dyspnœa and palpitations on exertion, nervousness, prominence of eyes. Did not receive iodine. Loss of weight (14 lb. in one year). Menopause twelve years before admission. On examination: wasted, nervous; skin warm, moist, and pigmented; exophthalmos; fine tremor of hands; thyroid diffusely enlarged and soft; spleen palpable; heart overacting; B.P. 170/80.

Admitted on Feb. 24th, 1936. Received 50,000 I.U. menformon five times daily by mouth from March 19th to April 8th inclusive.

Date.		Pulse-rate.		Body-weight (lb.).		B.M.R. (per cent.).
March 2nd	..	100–110	..	71	..	+48
„ 7th	..	80–106	..	—	..	+90
„ 11th	..	100–110	..	72	..	+56
„ 14th	..	80–100	..	—	..	+67
„ 18th	..	90–100	..	72	..	+96
„ 21st	..	90– 98	..	—	..	+67
„ 25th	..	90–100	..	75	..	+60
„ 28th	..	90– 98	..	—	..	+61
April 1st	..	90–100	..	78	..	+54
„ 4th	..	80– 90	..	—	..	+33
„ 8th	..	80–100	..	76½	..	+31
„ 15th	..	90–100	..	81	..	+64

Remarks.—After three weeks on menformon therapy, patient thought she felt better and less nervous; still occasional palpitations and a feeling of warmth. Tremor slightly diminished; no change in pulse-rate. The basal metabolic rates varied so greatly that little conclusive evidence can be gained from them. On the whole there was little change in the clinical condition. On April 30th, 1936, partial thyroidectomy by Mr. J. P. Hosford, with marked improvement.

DISCUSSION

The rationale of œstrin therapy in toxic goitre lies in the hypothesis that œstrin inhibits the action of thyrotropic hormone or its production by the anterior pituitary. This presupposes that the symptoms of toxic goitre are the result of secondary hyperthyroidism consequent on an increased secretion of thyrotropic hormone, the supposition being based on the fact that a condition resembling toxic goitre can be produced in laboratory animals by the injection of thyrotropic hormone. Cases of toxic goitre associated with hyperpituitarism have been recorded (e.g., Worster-Drought,[21] Merklen and Aron,[22] Peters[23]) and it is well known that thyroid hyperplasia and increase in basal metabolism occasionally occur in acromegaly. As the growth hormone alone has no thyroid-stimulating property, these changes are probably due to hypersecretion of thyrotropic hormone. That there exists such a hypersecretion of the anterior pituitary in the ordinary cases of toxic goitre, however, has not yet been shown. Drouet[24] found in a number of patients with toxic goitre changes in the field of vision, which he ascribed to pressure on the optic chiasma by an enlarged pituitary, and claimed[25] to have produced amelioration of the clinical condition and reduction in the basal metabolic rate in four cases by irradiation of the pituitary. Similar results have been reported by Merklen and Aron,[22] who noted an increased excretion of thyrotropic hormone in the urine before treatment and a diminished excretion after irradiation of the pituitary. There is little evidence, however, in cases which come to autopsy that there is any structural change in the pituitary.

Thyrotropic hormone has been found in the urine and body fluids of normal persons (Aron,[26] Van Caulert, Aron and Stahl,[27] Hellwig,[28] Giedosz[29]). In myxœdema it is said to be increased (Aron,[26] Paàl,[30] Nielsen[31]), and in toxic goitre to be absent or to occur in extremely small quantities (Aron[26]). The titration of body fluids for thyrotropic hormone, however, is not yet satisfactory, and some investigators throw considerable doubt on all these results (Krogh and Okkels,[32] Smith and Moore[33]). As far as the evidence goes at present, there is no indication that excessive amounts occur in the vast majority of cases of toxic goitre. Merklen and Aron[22] maintain that in a few cases of toxic goitre an increased excretion of thyrotropic hormone is found and that such cases benefit by pituitary irradiation, but that the majority of cases exhibit a diminished excretion of thyrotropic hormone and that in such the primary disturbance is hyperthyroidism. They recommend the examination of the urine in every case of toxic goitre for the degree of thyrotropic activity in order to differentiate those cases which are due primarily to hyperpituitarism.

That œstrin has an inhibitory effect upon the anterior pituitary in the human is suggested by the work of Zondek,[34] Fluhmann,[35] and Frank and Salmon[36] on its action on hypophyseal hyperactivity in castration and spontaneous menopause. As the presence of the gonadotropic principle of the anterior pituitary is far more easily determined in body fluids than the thyrotropic, the results are less controversial. Frank and Salmon observed that in 14 menopausal patients, in whom a hypersecretion of gonadotropic factor was found in the blood and urine, injections of large doses of œstrin resulted in a rapid, though temporary, decrease of gonadotropic factor with amelioration of symptoms. If œstrin be proved definitely to have an inhibitory effect on the production of thyrotropic hormone, the clinical experiments here recorded are evidence against the hypothesis that toxic goitre is caused by a hypersecretion of thyrotropic hormone.

SUMMARY

As there is experimental evidence that œstrin inhibits the activity of the thyroid, and the action or production of the thyrotropic hormone of the anterior pituitary, a trial was made of its value in the treatment of six women with toxic goitre. After a preliminary rest period, four received daily intramuscular injections of 50,000 I.U. of dihydroxyœstrin (dimenformon): these were given for 12 days in two cases and for 21 days in two cases. Two other patients received 250,000 I.U. ketohydroxyœstrin (menformon) daily by mouth for 21 days. There was little or no improvement in the clinical condition or fall in the basal metabolic rate as a result of this therapy.

I wish to thank Prof. L. J. Witts for his constant interest in this work. My thanks are also due to the ward sister, Miss F. E. Evans, for her help in the preparation and treatment of the patients, and Mr. J. Board for the determinations of the basal metabolic rates. I am indebted to Dr. A. N. Macbeth, of the Organon Laboratories, for supplies of menformon and dimenformon.

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ROYAL VICTORIA INFIRMARY, NEWCASTLE-UPON-TYNE.—At a meeting of the house committee on Sept. 26th, it was announced that King Edward VIII. had consented to become patron of the hospital in succession to his late father. Lord Armstrong handed to Prof. Grey Turner on behalf of the house committee an illuminated address containing the signatures of all its members, and Prof. Turner spoke with feeling of his 35 years' association with the hospital. A gift was announced of £500 from a member of the ladies' singing band for the endowment of a cot.

INHIBITORY EFFECT OF FOLLICULAR HORMONE ON THE ANTERIOR PITUITARY IN HUMANS

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(From the Royal Edinburgh Hospital for Mental and Nervous Disorders, and the Institute of Animal Genetics, University of Edinburgh)

Frank and Salmon[1] have demonstrated that administration of follicular hormone (œstrin) in large doses leads to disappearance of the gonadotropic factor of the anterior pituitary from the blood and urine of women past the menopause. More recently, Zondek[2-4] has shown that in rats the growth and gonadotropic factors of the anterior pituitary can be inhibited by the same means.

Cramer and Horning[5 6] observed that prolonged administration of œstrin leads to a state of hypopituitarism in mice, due, they consider, to a diminution in the number of chromophil cells in the anterior pituitary. As these cells are supposedly responsible for the secretion of the specific hormones of the anterior pituitary, hypofunction leads to a state of hypopituitarism, and evidence of this—such as cachexia, degenerative changes in the adrenals and gonads, hyperplasia of the islets of Langerhans, and atrophy of the thyroids—was found in the mice. In some animals œstrin caused hæmorrhagic chromophobe adenoma, while in others there was merely an enlargement of the gland. It is the diminution in the number of chromophil cells, however, which they regard as the essential factor in their experimental hypopituitarism.

Zondek[3] demonstrated that œstrin, administered in amount sufficient to inhibit the growth and gonadotropic hormones, brought about an increase in the size of the pituitaries of male but not of female rats, and he throws some doubt upon the findings of Cramer and Horning.

Barnes, Regan, and Nelson,[7] and Nelson and Overholzer[8] have used œstrin in attempts to inhibit the "diabetogenic" activity of the anterior lobe of the pituitary. They gave the hormone in large doses to depancreatised monkeys and dogs, and they found that the glycosuria resulting from removal of the pancreas could be controlled by daily injections. Their conclusions are based on the assumption of an antagonism between the anterior pituitary hormone and the internal secretion of the pancreas. But Collens and co-workers[9] had no success when they tried to reduce the hyperglycæmia of human diabetes by the same method.

The factors controlling carbohydrate metabolism are extremely complex, as Langdon-Brown pointed out in his Horsley lecture[10] last year. He referred to Houssay's recent isolation, from the urine, of a diabetogenic hormone that causes a rise of blood-sugar on injection into the experimental animal. But Young[11] thinks it unlikely that any simple diabetogenic hormone exists, and suggests that there are at least three factors involved—a ketogenic, a glycotropic, and a glycogenolytic.

The present paper records an attempt to inhibit not only the gonadotropic, but also the diabetogenic principle of the anterior pituitary by giving large doses of œstrin. The ten subjects chosen were women whose ages ranged from 52 to 83, the average being

62·6. They were all psychotic and had been in hospital for more than three years, and they were all in a chronic stage of their illness, so that endocrine or metabolic fluctuations due to emotional causes were improbable.

TABLE I

Abolition of Gonadotropic Hormone Excretion by Œstrin

Case.	Age.	Diagnosis.	Gonadotropic hormone in urine before and after œstrin injections.	
			Before.	After.
1	68	Melancholia.	+	0
2	52	"	+	0
3	71	Paraphrenia.	+	0
4	83	Senile psychosis.	+	0
5	68	Manic depressive.	+	0
6	59	Melancholia.	+	0
7	76	Senile psychosis.	+	0
8	69	Paranoia.	+	0
9	70	Senile depression.	+	0
10	78	Senile psychosis.	+	0

The "plus" sign indicates more than 50 mouse units per litre of 24-hour specimen of urine.

Before œstrin was given, the amount of gonadotropic hormone in the urine was estimated.

Samples of 60 c.cm. of a 24-hour output of urine were used. To each sample, 240 c.cm. of absolute alcohol was added and the mixture was centrifuged for ten minutes. The precipitate after careful washing with ether to remove any traces of œstrin was dissolved in 7 c.cm. of distilled water and made neutral to universal indicator. Three 21-day-old female mice were used for each test and 0·3 c.cm. of the extract was injected twice daily for six injections. The mice were killed on the morning of the fifth day; the vagina, uterus, and ovaries were examined macroscopically and the ovaries removed for serial section.

TABLE II

Sugar Tolerance Before and After Œstrin Injection

Case.	—	Fasting.	½ hr.	1 hr.	1½ hrs.	2 hrs.
1	Before œstrin.*	74	129	125	120	100
	After course I.	66	104	126	107	100
	„ „ II.	64	102	105	112	87
2	Before œstrin.	70	113	74	68	72
	After course I.	82	107	119	123	125
	„ „ II.	83	66	80	77	82
3	Before œstrin.	69	89	79	76	76
	After course I.	72	107	116	104	102
	„ „ II.	64	100	84	81	62
4	Before œstrin.	86	111	132	118	109
	After course I.	79	121	125	128	128
	„ „ II.	77	110	148	57	93
5	Before œstrin.	88	118	114	83	63
	After course I.	88	102	73	82	111
	„ „ II.	89	95	91	107	117
6	Before œstrin.	83	107	136	97	76
	After course I.	68	100	116	107	102
	„ „ II.	73	100	149	124	96
7	Before œstrin.	106	158	131	105	94
	After course I.	83	90	115	79	72
8	Before œstrin.	70	108	120	106	88
	After course I.	70	63	56	79	56
9	Before œstrin.	87	155	162	87	67
	After course I.	91	119	148	137	104
	„ „ I.†	100	91	90	99	100
10	Before œstrin.	86	134	123	111	97
	After course I.	84	164	179	166	148
	„ „ I.†	82	121	135	130	114

* Blood-sugars in mg. per 100 c.cm. following dose of 50 g. of glucose by mouth. Course I. consisted of 500,000 mouse units dimenformon given in injections of 50,000 M.U. every second day for twenty days. Course II. was 1,000,000 M.U. given in daily injections of 50,000 M.U. for twenty days. In Cases 1 to 6 there was an interval of twenty-one days between courses I. and II. In Cases 9 and 10 there was an interval of six days between the two courses. † Repeated.

The urine of all ten women, tested in this way, gave a strongly positive reaction, the ovaries and uteri of all the mice being much enlarged, while in two cases blood spots indicative of hæmorrhagic follicles were found. The sectioned ovaries showed numerous mature Graafian follicles, and in one case several fully developed corpora lutea were seen.

The patients then received injections of œstrin, and when the tests were repeated none of the mice showed any enlargement of either uteri or ovaries, while section of the ovaries revealed only primordial follicles. In other words, the amount of œstrin given sufficed to abolish the secretion of gonadotropic hormone by the anterior pituitary (Table I.). What effect had it on blood-sugar tolerance? No consistent finding was obtained (Table II.) and even after twenty daily injections of 50,000 mouse units of œstrin (Dimenformon), a consistent fall in blood-sugar level was not obtained. (One mouse unit of dimenformon equals one international unit of œstrin.) That the dosage employed was large enough to be physiologically potent is shown by the fact that 7 of the 10 women developed bleeding from the uterus (Table III.). This, of course, did not represent true menstruation, but merely the proliferative response of the endometrium to the œstrin. No alteration in the clinical state of any of the patients was noted during or after the administration of œstrin.

TABLE III

Uterine Bleeding After Œstrin Injections

Case.	Duration of bleeding (days).	Time after last injection (days).	Case.	Duration of bleeding (days).	Time after last injection (days).
1	2	23	6	3	8
2	5	10	7	—	—
3	2	10	8	—	—
4	1	22	9	4	6
5	—	—	10	4	5

SUMMARY

Ten women past the menopause were given varying amounts of œstrin (dimenformon), six receiving 1,500,000 mouse units (M.U.) in 60 days, two receiving 1,000,000 M.U. in 46 days, and two receiving 500,000 M.U. in 20 days. In all of them the excretion of gonadotropic hormone in the urine, which had exceeded 50 M.U. per litre, was abolished. Besides inhibiting the gonadotropic hormone the œstrin produced uterine bleeding in 7 out of the 10 women. Yet it had no consistent effect on glucose-tolerance test. In other words, inhibition of the gonadotropic principle of the anterior pituitary with large doses of œstrin was not accompanied by inhibition of the diabetogenic principle.

We wish to express our thanks to Prof. D. K. Henderson, physician superintendent of the Royal Edinburgh Hospital for Nervous and Mental Disorders, for clinical facilities, and to Prof. F. A. E. Crew for affording us the opportunity of performing the hormone tests in his department. We are indebted to the Organon Laboratories for a generous supply of dimenformon. The cost of the investigation was defrayed by an expenses grant to one of us (T. N. M.) from the Medical Research Council.

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ACID VALUES IN PURULENT DISCHARGES

AN INVESTIGATION WITH SOME CLINICAL INFERENCES

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In pre-Listerian days a description of the physical and chemical characters of pus was an essential component of the surgical case-history. The compellative adjectives "grumous, glairy, sanious, acrid" had their proper connotation, and added to the graphic presentation of the clinical problem. In modern medicine much of this picturesque descriptive ability has been swamped by a flood of sententious Græco-Latin polysyllables: the graphic has become pasigraphic; perhaps also the habit of observation that give birth to these word pictures is in danger of being overwhelmed by technicalities which mask a picture possessing clinical and prognostic significance for the surgeon.

References in standard text-books to the examination of pus from aspects other than the purely bacteriological appear to illustrate this theory; while the organismal and serological characters of pus receive ample study, little attention is paid to its physical and chemical nature. A description of pus, with the statement that it is alkaline in reaction, is contained in the earlier chapters of most text-books, and persists unqualified except possibly when the examination of infected urine is discussed. Here, however, acidity or alkalinity is noted in terms of the reaction of the urine, without emphasis of the fact that when, for example, the observation is made that "the urine may be acid in a pure infection with either *B. coli* or the tubercle bacillus"[1] it is the identity of the infecting organism, not the reaction of the urine to it, which determines this chemical state.

Previous investigations do not appear to be numerous. Winnett Orr, in his treatise outlining his widely adopted vaseline-pack-immobilisation technique,[2] makes scant reference to the bacteriology of the wounds, and almost none to the chemistry. Baer's account of his early experiments in the treatment of osteomyelitis by the use of maggots[3] states that bacteriological examination of the maggots and of the wounds showed that in addition to ordinary pyogenic bacteria, there was frequently contamination with anaerobic organisms, both those of gas gangrene and tetanus; he noted that acidity was present and that this disappeared after three weeks' treatment by maggots. Albee, after d'Herelle, describes[4] the preparation and use of a bacteriophage obtained from the pus, but makes no reference to the chemical reaction of the discharge. An investigation by the late Major S. W. McLellan, R.A.M.C., in France in 1914,[5] showed that gas-gangrene infected wounds frequently discharged pus of an acid character, particularly when recovery was clinically probable, and he attributed this acidity to proteolytic action by bacterial agency. The publication in 1932 of Stirling's research establishing the acid character of the primary hæmatoma in fracture cases[6] led to my inquiry into the reaction of purulent discharges met with in hospital practice, particularly in cases of bone infection treated by Winnett Orr methods.

THE PRESENT INVESTIGATION

The pH scale.—A total of 314 examinations of pus from 175 cases has been made, of which 78 were taken from cases treated by the Winnett Orr method, and the pH value was obtained in 40 specimens. A few data on the determination of alkaline-acid values may be permitted.

(*a*) Acidity or alkalinity of a fluid depends on the free hydrogen-ion content. (*b*) This hydrogen-ion content is calibrated to a scale, the pH scale, wherein the figure 7, which represents the hydrogen-ion content of water, denotes the point of neutrality. (*c*) Acid values are expressed by the figures below 7, and alkaline by figures above 7, and to decimal points of these. (*d*) Fresh human blood, being alkaline, shows a value of pH 7·4; clinical evidences of "acidosis" appear if the pH of blood falls to 7·2.

The *objects* of the present investigation were, first, to confirm the predicate that in general pus is alkaline in character; second, to inquire whether, and in what circumstances, pus became acid in reaction; and, third, if this did occur, what clinical significance such a phenomenon might possess. For these purposes the pus from 150 cases of whitlow, boil and carbuncle, and discharging septic wounds (Group 1) has been examined on 236 occasions; and from 25 cases of bone infections treated by the Winnett Orr method (Group 2). Details of these observations are contained in Table I.

TABLE I

Cases.	No.	Examinations.	Reactions.		
			Alkaline.	Acid.	Neutral.
GROUP 1					
Whitlow	54	86	78	0	8
Boil and carbuncle	74	100	98	0	2
Septic wounds ..	22	50	46	2	2
Totals ..	150	236	222	2	12
			94 % alkaline.		
GROUP 2					
Osteomyelitis ..	16	48	4	42	2
Septic compound fracture ..	5	18	2	14	2
Septic wounds ..	4	12	0	11	1
Totals ..	25	78	6	67	5
			86 % acid.		

These analyses show therefore that while purulent discharges in normal conditions are alkaline, the discharge in cases treated by the Winnett Orr method is usually acid at the first dressing.

pH values of pus.—The alkalinity of pus, as usually met with, having been confirmed, and the noteworthy fact of the acidity of pus in certain circumstances having been established, an attempt was made (*a*) to ascertain the actual pH values in each group, and (*b*) to determine the time factor in the production of acidity in Group 2. These analyses were done partly by a firm of analytical chemists using the potentiometer, and partly by means of colorimetric tubes, buffered for colour against the colour of the

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(*Continued from previous page*)

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pus under examination. In Group 1 cases the dressing was removed and the pus aspirated by pipette; in Group 2 cases the pipette was insinuated between the pack and the tissues, so as to cause minimum disturbance of the pack. Forty estimations of this character were made, the results of which are shown in Table II.

TABLE II

Cases.	Examinations.	Dressing interval (days).	pH value.		
			Highest.	Lowest.	Average.
GROUP 1 10	10	2	7·8	7·1	7·6
GROUP 2 10	10	9	7·0	6·6	6·8
	10	21	6·9	5·8	6·5
	10	42	6·4	5·2	5·9

These analyses show (*a*) that the average alkalinity of pus discharges in Group 1 is slightly higher than that of fresh blood; and (*b*) that the acidity of discharges in cases treated with the vaseline pack increases at a rate roughly proportionate to the length of time the pack is left in situ.

Physiological effect of acidity.—The clinical experience of those who employ the vaseline pack cum immobilisation technique gives the impression of its possessing two inherent advantages—viz., (*a*) that separation of sequestra is accelerated, with absence of involucrum formation; and (*b*) that rapid obliteration of cavities by growth of granulation tissue takes place. It is reasonable to infer that as the acid primary hæmatoma in a fracture dissolves the fixed calcium in the bone-ends [6] so the acid pus dissolves the calcium in the adherent necrotic bone of a sequestrum. But may not the acidity have a further effect, to stimulate the generation of primary mesoblastic tissue, with resultant acceleration of granulation tissue growth? It is difficult to be dogmatic in this matter; elimination of the cell trauma involved in daily dressing of cavities must play some part in the relative rapidity with which pack-treated cavities close. But I believe that a more important reason for this rapidity of growth is the stimulation of mesoblastic tissue by an acid environment shown to exist in these cases. An endeavour was made to compare the rate of growth of granulation tissue in the two groups of cases. The fluid content of the cavity in three cases in each group was measured, and the rate of "displacement" of the fluid by growth of granulation tissue determined. As far as possible clinically similar cases were selected. The results are shown in Table III. The interval between estimations was three weeks in each case, and the amounts are calculated to the nearest 0·5 c.cm. From these figures, no more can be deduced than that under the vaseline-pack-immobilisation technique the rate of growth of granulation tissue is more than double the "normal" rate; but it is legitimate to suspect that the acidity of environment in the wound is to some extent responsible for this accelerated growth of granulation tissue.

TABLE III

Case.	Initial fluid content of cavity (c.cm.).	Fluid content at three weeks (c.cm.).	Amount of fluid displaced (c.cm.).
GROUP 1 1	29	26·5	2·5
2	16	12·5	3·5
3	21	18·5	2·5
Averages	22	19·5	2·5
GROUP 2 1	27	21·5	5·5
2	33	26·5	6·5
3	34	28·5	5·5
Averages	31	25·5	5·5

Nature of the acidity.—The source and nature of the acid elaborated in these cavities is obscure. Reactions for lactic and butyric acid have been obtained in most specimens, the latter possibly accounting for the characteristic malodour. Normally these acids develop in two ways in the body, either as products of tissue metabolism, or elaborated by the action of the proteolytic group of saprophytic organisms (*B. welchii*, etc.) which "have been found to split proteins to amino-acids," [7] thus giving an acid reaction to the discharge. A number of bacteriological examinations of the later discharges have been made, but these are incomplete. *B. proteus* is frequently found, an organism with marked proteolytic power in certain circumstances; *B. welchii* and *B. tetani* have not been isolated. No more can at present be advanced than the suggestion that the acidity is the result of two processes, tissue autolysis and organismal proteolysis. A specimen bacteriological report is given (Dr. Cookson):—

> "1. *Short-chained streptococci* were seen; these were scanty in films and grew with difficulty. They were non-hæmolytic and were, I take it, the usual skin cocci.
>
> "2. *Staphylococci* were seen; these were very scanty. Both *albus* and *aureus* were present, the latter very scanty both in films and in first culture. The *S. aureus* showed very well-marked hæmolytic powers and the culture developed a bacteriophage.
>
> "3. *Diphtheroids*, these were ordinary skin diphtheroids.
>
> "4. *Gram-negative rods* seen in films and appeared to be the predominant organism. These rods turned out to be *B. proteus*; milk was coagulated with acid formation and then proteolysis. Dextrose and saccharose were fermented with acid and gas production, but lactose was untouched; gelatin was liquefied.
>
> "It was noteworthy that the total number of organisms present was comparatively small; that no spore bearers or obligatory anaerobes were found. In regard to *B. proteus*, this organism is of pathogenic significance of a secondary nature; it occurs, as you know, in the bladder, &c. In regard to the formation of decomposition products from protein of a putrefactive nature, Rettger and Newell [8] consider that *B. proteus* does not produce these. I gather, however, that this is not an opinion shared by all."

CLINICAL DEDUCTIONS

What clinical deductions, if any, may legitimately be drawn from the foregoing observations? The following are suggested.

1. Pus in a wound is normally alkaline in reaction.
2. Pus in a wound treated by the Winnett Orr method undergoes a change to acidity.
3. This acidity is a prime factor in hastening the separation of sequestra, and inhibiting the ectopic deposit of calcium and formation of involucra.
4. It is justifiable therefore to employ in the pack lotions of a definite acid character; novocain and procain, being hydrochlorides, possessing a pH value

below 7, are suitable agents, having in addition their desirable analgesic effect.

5. It is possible (? probable) that the acidity acts as a stimulus to formation of primary mesoblastic tissue, and the growth of granulations, and accelerated wound healing.

There can be little doubt that the spread of immobilisation methods in prevention and treatment of wound infections constitutes a considerable advance in the technique of treatment. Reports on these however have been predominantly clinical in character; further chemical and bacteriological research is desirable in view of the widespread adoption of Winnett Orr methods.

My acknowledgments are due to Dr. H. A. Cookson, pathologist, and Dr. G. F. Walker, consulting physician, both of the Royal Infirmary, Sunderland, for help in the investigations; to Dr. J. F. Halliday, radiologist to the Monkwearmouth Hospital, Sunderland, for constant radiological assistance; and to Messrs. A. S. Bean and J. Brown, analytical chemists of Sunderland, for their chemical reports.

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A CASE OF CROHN'S DISEASE

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IN 1932 Crohn, Ginzberg, and Oppenheimer recorded[1] 14 cases of "regional ileitis." They defined this condition as a disease in which the terminal 12–14 in. of the ileum became cicatrised, subsequent to a chronic inflammatory condition of unknown ætiology. The ileocæcal valve itself was the site of maximum involvement. They noted ulceration of the mucosa and disproportionate hypertrophy of the connective tissue which frequently led to intestinal obstruction associated with the formation of multiple fistulæ. These communicated either with the lumen of the large intestine or occasionally tracked anteriorly through the abdominal wall. The condition occurred in young adults and was benign; those patients who survived operation made a complete recovery.

Crohn published a second paper[2] in which he claims to have collected in three years 30–40 cases of this disease. In reviewing his definition of regional ileitis he stresses that *any* portion of the ileum might be the site of maximum involvement, not necessarily the ileocæcal valve. He had seen one case in which only 1 in. of gut had been thickened; another case, in which an anastomosis of small gut to colon had been performed, had to be operated on again at a later date on account of a second constriction in the proximal end of the ileum. Crohn also records regional ileitis occurring in a sister and brother and discusses the possibility of a congenital predisposition, the likelihood of some transmissible causative agent, or the probability of a purely accidental occurrence. Details are carefully given of a case in which only the uppermost segment of the ileum and a considerable area of the lower jejunum were thickened and engorged. Histological examination of the adjacent gland, however, revealed miliary tubercles, so that Crohn classified this case as one of primary tuberculous enteritis.

Kantor in 1934 demonstrated[3] the value of radiography in the diagnosis of 6 cases of regional ileitis. Of special note he pointed out (*a*) the filling defect proximal to the cæcum, (*b*) the abnormality in the contour of the last filled loop of the ileum, (*c*) dilatation of the iliac loops proximal to the lesion, (*d*) the "string sign" (a term, referring to the barium in the narrowed lumen, borrowed from A. W. Crane). Diagnosis was confirmed by operation; 5 cases recovered, but the sixth died from a perforation found at operation.

Galambo and Mittelmann in 1935[4] gave the details of 2 cases in which Crohn's disease was diagnosed before operation from the clinical and radiological evidence. In the authors' opinion exposures taken at the second, third, and fourth hour after intake of the barium meal are most useful. In both cases uneventful recovery took place after resection of the diseased gut. At operation the glands in one case were observed to form a solid mass in the short end of the mesentery, almost immobilising the terminal ileum. Histological examination of the thickened ileum showed chronic inflammation in the mucosal, submucosal, and muscular layers. Secondary lymph follicle formation and reticulum cell hyperplasia were observed in the submucosa, and the muscle layers were hypertrophied. Stress was laid on the absence of caseous necrosis, giant-cell reaction, epithelioid tubercle formation, or mononuclear change within the lymph follicles.

Wright in 1935 showed[5] 2 cases of Crohn's disease at the Medical Society of London. In one he had resected the gut, in the other he had made a transverse anastomosis. He reported successful results by short circuiting the gut in 5 other cases. No histological examination of the resected intestine is recorded. In the discussion at that meeting Hunter said he had seen one case in which the resected gut had been labelled lymphadenoma, and in a second case the piece of intestine was so firmly thickened that it "stood up on end like a ruler"; as the patient was too ill for a resection to be performed an anastomosis was made. Two cases, in which the ileocæcal valve was mainly involved, were recorded by Cope and also by Simpson-Smith. Wright in his reply mentioned that Anderson and Grey, working at a sanatorium in Scotland, had found the disease in tuberculous subjects, and in their cases tubercle bacilli had been demonstrated in the tissues of the gut by animal inoculation. Wright did not wish, however, to infer that Crohn's disease was due to the tubercle bacillus but suggested that breaches in the continuity of the mucosa had set up a hyperplastic response producing a non-specific granuloma.

Barbour and Stokes have recently reviewed[6] the literature of chronic cicatrising enteritis, and give careful details of a case in which multiple constrictions were found post mortem in 21 in. of small intestine. The constrictions were present in 13 places of thickening while 7 intervening portions of ballooned, thin-walled intestine bore no constant relation to the constricted parts. The mesenteric lymph nodes were not enlarged, and nowhere was any evidence of tuberculosis found. Microscopic examination showed more acute pathological change in the lesions proximal to the ileocæcal valve. The mucous membrane showed ulceration, the submucosa contained small abscesses and

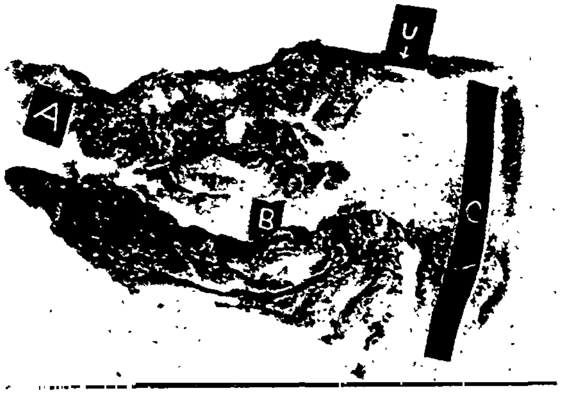

FIG. 2.—The resected small intestine showing (A) the greatly thickened gut wall; (B) the narrow lumen; (C) the thin wall of the distended part; and (U) an ulcer, from which the sections for Fig. 3 were taken.

fibrous tissue was present in excess in the muscle coats. Foreign body giant cells were numerous between the long and circular muscle coats in those parts where the reaction was less acute. The lymphoid tissue was not hypertrophied.

Rosenblate, Goldsmith, and Strauss diagnosed[7] a case of Crohn's disease on clinical and radiological evidence, in which an uneventful recovery was made after resection of the cæcum and 18 cm. of ileum. The gut was thickened, especially in the region above the ileocæcal valve, and the entire mucosa was polypoid. In such cases where the disease extends to the cæcum, the authors suggest the use of the term "ileocolitis ulcerosa chronica."

CASE REPORT

The patient was a male aged 31 years. Discomfort in the epigastric region was first noticed eighteen months before admission to hospital. Vomiting, which occurred about twice a week, relieved the pain. There was anorexia and loss of weight, gradual increase of weakness and pallor. The patient stated that he had never noticed blood or mucus in his stools. The fæces became very loose 3 months before admission, and the desire to defæcate increased to ten or fifteen times per day. The incidence of vomiting increased, and hospital advice was sought. The patient was seen by Dr. K. Eckenstein in the out-patient department of the French Hospital. Excessive abdominal distension and peristalsis was observed, and he was admitted as a case of chronic intestinal obstruction.

Family history.—Within the last year a married sister developed intestinal trouble. She was operated on by Mr. Harold Wilson, who excised 18 in. of small intestine. The diagnosis of tuberculous enteritis was confirmed by histological examination. There is no other case of tuberculosis in the family, both parents and two other sisters are well.

On admission.—Radiograms of a bismuth meal and rectal enema failed to localise the site of obstruction, but demonstrated the extensive distension of the small intestine (Fig. 1). No abnormalities were found on examination of the urine. Blood-urea: 30 mg. per 100 c.cm. Wassermann, Kahn, and Meinicke reactions were negative. Red blood-cells: 4,340,000 c.mm. Hæmoglobin: 78 per cent. Colour-index: 0·9.

First operation.—Jan. 14th, 1936. The abdomen was opened through a right lower paramedian incision as the obstruction appeared to be in the terminal ileum. The whole of the ileum was distended and œdematous, the distension being progressive until it terminated abruptly in a large mass which was firmly adherent to the floor of the rectovesical fossa. Beyond the mass there remained about 5 in. of normal ileum passing into a normal cæcum. The mass consisted partly of the tumour shown in Fig. 2 and partly of two coils of distended ileum, in the separation of which a spontaneous ileo-ileal fistula was found. The fistula was excised and the two ends invaginated. With difficulty a line of cleavage was found, and the mass was separated from the pelvic peritoneum and brought up into the incision. In the course of doing so, a hole occurred in the mass through which a little fæcal contents escaped. This was quickly stopped, and a hot pack placed in the pelvis to prevent oozing from what appeared to be an inflammatory surface. The mass was widely resected and a side-to-side anastomosis performed with a proximal valvular ileostomy. Although there was such a disparity in the size of the two pieces of ileum an immediate resection combined with anastomosis seemed justified, as the obstruction was chronic and not acute. The pelvis was drained, and by a second stab incision another soft rubber tube was placed down to the anastomosis. The abdomen was closed in layers with the pelvic and ileostomy tube draining at the lower end.

The ileostomy drained for some days; then the bowels acted with the aid of enemata and continued to do so, but very irregularly. The ileostomy showed no sign of closing, and drainage also occurred through the tube down to the anastomosis, showing that it had been unduly optimistic to perform such a junction. By March 24th, although the bowels were acting spontaneously, the ileostomy showed no sign of closing and the discomfort that this produced was naturally acute.

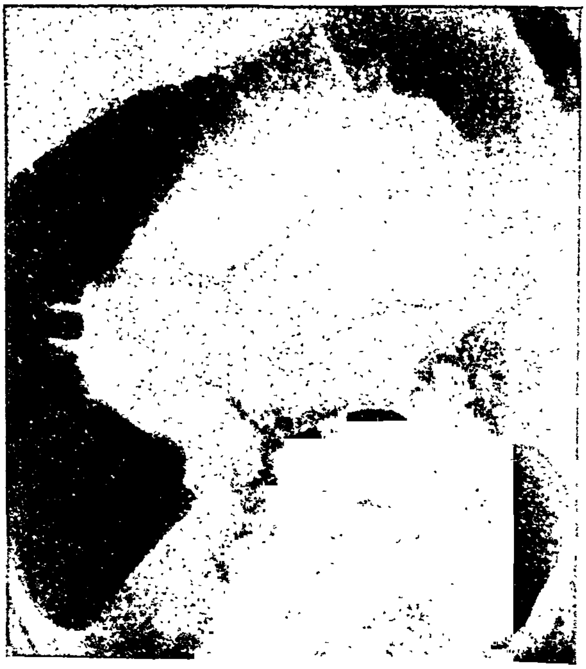

FIG. 1.—Radiogram of barium enema, showing great distension of small intestine.

Second operation.—March 24th. It was therefore decided to explore again. A left paramedian incision was made and the ileum identified at its lowest point. It entered a dense adherent mass consisting of the ileostomy, the anastomosis, and, in addition, what appeared to be a small spontaneous ileo-ileal fistula similar to that found at the first operation. As the separation and straightening out of this mass appeared too formidable an undertaking, an anastomosis between ileum and transverse colon was carried out, a very large stoma being made and the ileum slightly angulated to discourage the further passage of fæces towards the ileostomy.

The bowels acted spontaneously on the fourth day and have done so regularly since. The patient was discharged from hospital six weeks later apparently in excellent health, but a small dressing was required for a short time as there was a very slight purulent discharge from the lower end of the original right paramedian incision. This sinus finally healed.

Pathological report.—Fig. 2 is from a photograph of the 5 in. of small intestine that was sent to the pathological department. The specimen represented ileum 5 in. proximal to the ileocæcal valve, and shows two distinct portions, the first in which the wall of the gut (A) is ½ in. in thickness and the diameter of the lumen (B) measures ⅕ in., the second in which the wall of the gut is thin and distended so that the lumen here (C) is 2¼ in. in diameter. The thickening abruptly terminates and there is a large ulcer (U) due to retention of fæcal matter above the constriction.

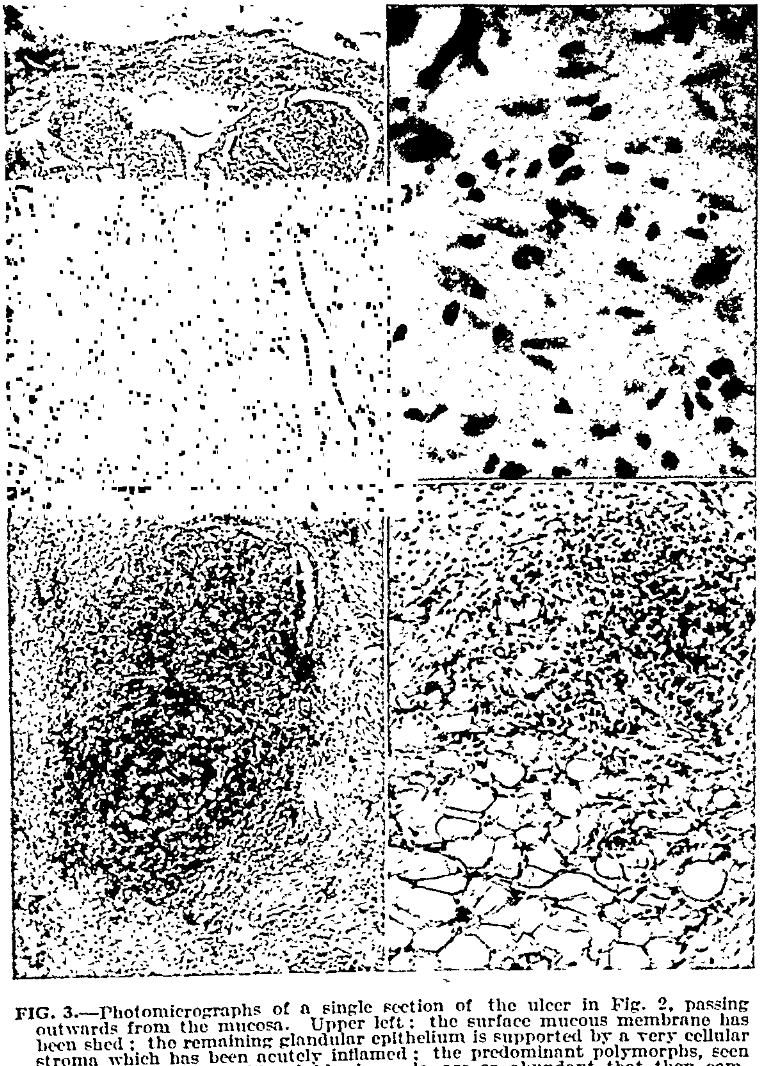

FIG. 3.—Photomicrographs of a single section of the ulcer in Fig. 2, passing outwards from the mucosa. Upper left: the surface mucous membrane has been shed; the remaining glandular epithelium is supported by a very cellular stroma which has been acutely inflamed; the predominant polymorphs, seen within the numerous dilated blood-vessels, are so abundant that they completely obscure the connective tissue, producing the picture of an early abscess. (× 45.) Upper right: high power magnification (× 360) of submucosa; less acute inflammation; less cellular, young fibroblasts present, with a few polymorphonuclear and plasma cells in the œdematous background. Lower left (× 45): one of the many circular aggregations of cells seen throughout the submucosa and muscle and fatty tissue, which at once suggest tubercle, but contain no typical epithelioid cells or giant cells, and show no central clearing or necrosis—on the contrary the cells are most densely packed at the centre; the cells are chiefly small lymphocyte and reticulum cells; the apparent vacuoles are formed by drawn out eosinophil processes of the latter, whose nuclei are pale staining with a deeper staining nuclear membrane, many of the nuclei contain two nucleoli, and some are in active mitosis (sections stained by Ziehl-Neelsen's method fail to reveal acid-fast organisms). Lower right: the small round-celled inflammation extending into the fatty tissue of the mesentery. (× 85.)

In Fig. 3 there are four photomicrographs taken from one section. They represent a series of fields passing outwards from the mucosa, through submucosa and muscular layers to the serous coat, at the site marked (U) in Fig. 2.

After examining several slides one foreign body giant cell was found containing nine nuclei at one side of the cell. It was situated in fibrotic tissue and probably resulted from the inclusion of a small particle of fæcal matter which was entrapped in an ulcer and thence conveyed by the lymphatics to the deeper tissue, where it became encapsuled in the process of healing.

Post-operative pathological investigations.—Three months after the first operation: Red blood-cells, 5,200,000 per c.mm.; hæmoglobin, 102 per cent.; colour-index, 1·0.

Mantoux reaction.—0·2 c.cm. saline, as a control, was injected intradermally on the flexor surface of the right forearm, and 0·2 c.cm. 1/100,000 old tuberculin and 0·2 c.cm. 1/10,000 old tuberculin were injected intradermally on the flexor surface of the left forearm. After 24 hours the lowest tuberculin dilution had caused some local redness and after 48 hours there was redness and induration of 10 mm. and 24 mm. to 1/100,000 and 1/10,000 old tuberculin respectively. The discoloration and induration still persisted when the patient left for a convalescent home seven days later.

SUMMARY AND DISCUSSION

A case of regional ileitis has been described which conforms clinically and pathologically to Crohn's disease.

In view of the case which Crohn (1934) considered "regional ileitis" until the regional lymph gland gave conclusive evidence of tuberculosis, it seems a wise precaution, wherever possible if this condition is suspected, that a gland should be removed for pathological investigation.

Although there is no evidence of tuberculosis in the ileum described in this paper, the investigation is deemed incomplete without the glandular examination, especially as the patient reacted positively when tested intradermally to 1/100,000 old tuberculin. The occurrence of tuberculous enteritis in the patient's sister is worthy of note in this connexion.

This case is being recorded to stress the importance of examining the intestine and regional lymph glands for tuberculosis both histologically and bacteriologically.

I wish to express my thanks to Dr. Eckenstein for permission to publish this case, to Dr. E. ff. Creed for giving his opinion on the sections, and to Mr. Geoffrey Parker for the description of the operation.

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LEFT-SIDED HEART FAILURE WITH PULMONARY ŒDEMA

ITS TREATMENT WITH THE "PULMONARY PLUS PRESSURE MACHINE"

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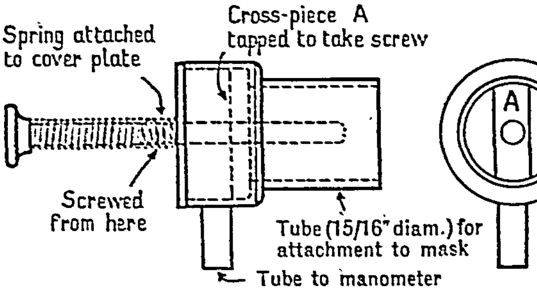
Acute pulmonary œdema of circulatory origin must be due to incoördination between the right and left ventricle such that the volume of blood delivered per minute into the pulmonary circulation is not completely passed on into the systemic circulation by the left ventricle. Congestion of the pulmonary circulation with local rise of blood pressure must follow, leading to acute pulmonary œdema. A case of this kind with myocardial degeneration was investigated about ten years ago by Campbell and Poulton [1] [2] in which evidence was brought forward that during muscular exercise there was acute pulmonary congestion lasting some minutes. Further, Crowden [3] showed by X ray examination of the chest that the amount of blood in the pulmonary circulation could be varied by certain respiratory exercises. Thus in Müller's experiment—attempted inspiration against a closed glottis—the amount of blood in the chest was increased and the heart was enlarged, which is the converse of Valsalva's experiment—attempted expiration against a closed glottis—in which the chest was emptied of blood and the heart became small.

I should like to thank Prof. J. Plesch [4] for suggesting to me the principle of the "pulmonary plus pressure machine" by which the pressure in the air-passages of the lungs can be increased, so as to oppose the increase of intrapulmonary blood pressure. The effect will be to push the blood already present in the pulmonary circuit onwards through the left ventricle and at the same time to oppose the delivery of more blood by the right ventricle; it will be of special importance when the patient's respiration is "rattling," for this is considered by Plesch to be a compensatory mechanism to hinder the œdema; the patient makes inspiratory gasps which are short, since the diminished pressure during inspiration is dangerous tending to cause œdema, and he makes prolonged rattling expirations through contracted bronchi and glottis, which keep up the pressure, acting in the opposite direction.

The machine as eventually designed consists of a blower—an Electrolux or Hoover vacuum cleaner answers the purpose, or the smaller Hoover "dustette" might be adapted—which supplies air under positive pressure through an opening to a mask; the air escapes through a valve which is fitted into another opening in the mask. The valve* (see Figure) has a metal disc which is held up against the opening by a spring which can be tightened by turning the screw. On its proximal side there is a tube which leads to a manometer; this is a bottle of about 10 oz. containing coloured fluid to a depth of about an inch; it is hung up beside the bed. Two tubes pass through the cork, one beneath the fluid, the other just inside the bottle; the latter tube is connected to the valve. The pressure in the air passages is regulated by the strength of the spring and by the rate of flow, and the two should be adjusted so that there is an insignificant fall in pressure in the manometer during inspiration. A plus pressure of 6 in. is about the maximum that can be tolerated; often it will be better to try half this amount. The ordinary vacuum cleaner used as a blower usually gives too big a flow; it is cut down by an adjustable resistance or a machine of oversize voltage may be used. When the household vacuum cleaner is employed the machine should be run for some minutes first of all to get rid of dust; then a new flexible tube should be fitted, and there should be a cotton-wool filter. If the stream of air is too rapid the patient may complain of the air being cold. Apart from cutting down the air it has been warmed by putting a hot-water bottle in the compartment for the dust bag of the electrolux or by sucking air from in front of a radiator or electric fire.


Spring attached to cover plate
Cross-piece A tapped to take screw
A
Screwed from here
Tube (15/16" diam.) for attachment to mask
Tube to manometer

CLINICAL USES

An attack of pulmonary œdema, presenting typical features, is one of the uncommon emergencies in medicine, so that if the use of the plus pressure machine were confined to this condition, it would not be of much practical use. Consequently the machine was tried in other cases. In the first place it was found to bring relief in paroxysmal dyspnœa (cardiac asthma); this was a surprise and yet recent clinical as well as experimental evidence has been accumulating that pulmonary congestion, if not œdema, may be a factor in cardiac asthma. For instance, as Prof. John Ryle has pointed out to me, a patient with typical pulmonary œdema may give a previous history of paroxysmal breathless attacks; the relation between the two has been dealt with at length by Weiss and Robb.[5] Then in some of the cases I have observed marked epigastric pulsation, while the radial pulse and apex beat were weak—physical signs that would be expected when the right ventricle was beating vigorously and the action of the left ventricle was weak. Experimentally, Calhoun and Harrison [6] have found that forced breathing leads to a large increase in the absorption of oxygen from the inspired air; the only possible explanation is that the flow through the pulmonary circuit is increased; in some cardiac patients during forced breathing the left ventricle did not succeed in getting rid of the blood because it was found that the vital capacity was diminished and occasionally pulmonary œdema was observed. They suggested that such pulmonary œdema might follow an involuntary deep breath after coughing, or a series of deep breaths in the dyspnœic phase of Cheyne-Stokes' breathing, especially at night. Now if Plesch's hypothesis of a compensating reflex mechanism is correct—and it is only a hypothesis—this pulmonary congestion or œdema will itself increase the breathlessness, and there will be a vicious circle. Once remove the congestion or œdema and the breathlessness will stop. The fact that the pulmonary plus pressure machine does remove the breathlessness suggests that this line of argument holds good.

Success in cardiac asthma suggested the trial of this method in bronchial asthma. Presumably it would be no use where bronchial spasm was the sole cause of the attack, though in this condition the right ventricle would also be beating more strongly than the left; but if œdema of the bronchial mucous membrane was the cause of the attack some success might be expected. Actually some patients with asthma benefited and others did not. One patient (Case 13) made a dramatic recovery from a severe attack.

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* Down Bros., St. Thomas's-street, S.E., supply the apparatus.

The action of the machine on the normal subject is being investigated in collaboration with Dr. S. S. Suzman.[7] It will be sufficient to state here that changes in the electrocardiogram and in the size of the heart have been observed, and that an asthmatic type of breathing is produced; the mean position of the diaphragm is lowered and the volume of air in the chest is increased, expiration is prolonged, and inspiration is shortened. In two cases of asthma (Nos. 19 and 20) the note was made that the patient felt comfortable while using the machine though the attack was not arrested, and on removing the mask the attack went on as before. Is it possible that increased tension of the bronchial muscle with stretching of sensory nerve-endings may be the cause of the sensation of tightness during an attack and that by increasing the resistance to expiration by means of the machine, the bronchial muscle itself temporally relaxes and so the sensation of tightness is abolished?

The treatment was observed by myself personally at least once in all the following cases (except Nos. 9, 12, and 22), and by the resident medical officer or house physician at other times. The optimum pressure must be determined experimentally, using the patient's feelings as a guide. The use of too high or too low pressures may account for some of these later unsuccessful results. Thus in Case 9 the patient had been taught to adjust the pressure himself; he felt distressed when it was about 4½ in., but obtained relief when it was 2 in. However, if in the course of treatment the right ventricle begins to fail no further success with the machine would be expected, as there would be generalised heart failure. This apparently took place in Case 4. Since the machine acts by putting a strain on the right ventricle its use may be overdone as in Case 3, when severe angina was brought on; obviously its use requires care. In Cases 6 and 11 it was used satisfactorily for five or ten minutes an hour in an attempt to ward off attacks; but there is not sufficient evidence that it acts as a preventive.

The application of increased or diminished pressure to the gases in the lungs is an old procedure. A description of apparatus with reference to the older literature will be found in Theodore Williams's article on "artificial aerotherapeutics" in Allbutt and Rolleston's "System of Medicine."[8] The object in view appears to have been to inflate or deflate the chest and lungs, and sometimes to carry out these processes alternately. It is possible that apparatus of this kind has been found useful, owing to changes in circulation, such as have been described in this paper. Pressure chambers which surround the whole patient and which are in use at the Brompton Hospital and places abroad act solely by increasing the concentration of oxygen, which the patient is breathing.

CASES

PAROXYSMAL DYSPNŒA (CARDIAC ASTHMA)

Case 1.—Man, aged 54. (Lewisham Hospital, December, 1934.) Bronchitis since 1928. Now breathless attacks each night during period of treatment; he obtained relief. Apparently the machine was not so useful in later attacks.

Case 2.—Man, aged 48. (Lewisham Hospital, January, 1935.) Bronchiectasis and polycythæmia. Tried machine three or four times and felt relief; afterwards complained of the coldness of the air. Died a year later with bronchopneumonia.

Case 3.—Man, aged 56. (National Hospital for Diseases of the Heart, under care of Dr. Campbell, June, 1935.) Mitral stenosis, hyperpiesia, auricular fibrillation beginning three years back. Kahn test negative. Severe attack at night was relieved. Used the apparatus too much the next day, when he was not very breathless, and this brought on a severe attack of angina.

Case 4.—Man, aged 64. (Guy's Hospital, 1935, No. 5319.) Hyperpiesia, intermittent claudication, mild diabetes; occasional breathless attacks, not specially nocturnal. Wassermann and Kahn tests negative. Machine was successful in one sudden severe attack of breathlessness which was relieved after about five minutes; but later on it was of no use probably owing to general heart failure. Patient is alive now a year later and has just recovered from an attack of heart failure. Some relief in oxygen tent.

Case 5.—Man, aged 45. (Guy's, 1935, No. 3280.) About fifteen years of shortness of breath on exertion and bronchitis. Nocturnal attacks. Recent attack began ten days previously when out walking; but he managed to keep at work until three days before admission. Auricular fibrillation with pulse deficit, orthopnœa; rhonchi not very marked; no œdema of legs and back. The right ventricle was felt as a firm lump in the epigastric angle beating vigorously at 140. Radial pulse weak and uncountable. Heart-rate fell to 116 eight minutes after applying mask; radial pulse was stronger in five minutes. and was counted at 92 in 10 minutes and 85 in 16 minutes. This was a dramatic recovery from a very severe attack. Wassermann, Kahn negative.

Case 6.—Man, aged 52 (Guy's, 1935, No. 8689). Old coronary thrombosis, followed by change of electrocardiogram from left towards right ventricular preponderance. Hyperpiesia, gallop rhythm. Wassermann and Kahn tests negative. Nocturnal dyspnœa for a year. Felt benefit and improved with machine; later used it for ten minutes at a time, three times a day.

Case 7.—Man, aged 60. (Guy's, 1936, No. 3264.) Acute pulmonary œdema four years ago and again one year ago. Electrocardiogram: auricular fibrillation and left ventricular preponderance. Blood pressure: 160/100. Frothy sputum noted after an attack of dyspnœa. No nocturnal attacks. Wassermann and Kahn tests negative. Present attack began just before admission. When breathless, machine gave him relief; used it several times.

CHEYNE-STOKES BREATHING

Case 8.—Man, aged 51. (Guy's, 1935, No. 268.) Auricular fibrillation, cerebral embolism, right hemiplegia. Unconsciousness gradually came on with Cheyne-Stokes' breathing. Condition desperate. With machine pulse improved; the Cheyne-Stokes' breathing was less pronounced and disappeared for half an hour. Patient did well with machine from 4 P.M. till midnight, when it was removed. Died next day.

Case 9.—Man, aged 67. (Guy's, 1936, p. 6037.) For a year breathlessness on exertion; nocturnal dyspnœa; there has been a little œdema of feet. Occasional attack of pain in chest. Hyperpiesia; myocardial degeneration. Width of heart 18 cm. Electrocardiogram: partly inverted T waves and notched ventricular complexes. Congestion of lungs. Blood-urea 43 mg. per 100 c.cm.; Wassermann and Kahn tests negative. Relief from nocturnal attacks, when pressure was correctly adjusted (see text). Breathlessness increased and patient died in coma with cyanosis and Cheyne-Stokes' breathing. Post mortem: coronary sclerosis with recent thrombosis; commencing widespread infarction of left ventricular wall; the absence of pain at the end was remarkable. There was no pulmonary or systemic venous congestion. Was this due to the acuteness of the failure, which produced cerebral anoxhæmia alone? A similar case was investigated and is described elsewhere.[8]

BRONCHIAL ASTHMA

CASE 10.—Woman, aged 56. (Guy's, 1934, No. 10025.) Ayerza's disease. Polycythæmia. Asthma since 30 years old. Positive to feathers, pollen, and dust. Machine successful at first; not so good later on.

CASE 11.—Male, aged 49. (Guy's, 1934, No. 9135.) Asthma began nine months previously following bronchitis. Liked machine, and pulse-rate fell during treatment. Later used it for ten minutes every hour.

CASE 12.—Woman, aged 72. (Lewisham Hospital, February, 1935.) Admitted twice previously with bronchitis. Did well with apparatus and a series of asthmatic attacks was stopped.

CASE 13.—Man, aged 20. (Guy's, 1936, No. 3097.) Asthma coming on after pneumonia 13 years ago. Severe attack for two days. Very ill; pulse-rate 147. Adrenaline injections were ineffective. Machine brought relief and pulse fell to 120—a dramatic result. Later adrenaline brought success in some attacks, the machine in others.

CASE 14.—A young woman under the care of Dr. J. D. McLeod. Asthma for some years. Prolonged severe attack; no relief with the machine.

CASE 15.—Woman, aged 57. (Guy's, 1935, No. 5768.) Ten years' history of hay-fever. Has had asthma for the last 20 months. Some benefit from machine, but preferred adrenaline.

CASE 16.—Man, aged 31. (Guy's, 1935, No. 2358.) Asthma for 15 months. Machine was useful in dispelling the feeling of tightness in the early stages of the attack; but when the attack was established there was no curative effect. First sound louder at bottom of sternum than at apex. Pulse-rate, 88; respirations, 8. There was no alteration in the heart sounds, pulse, or respirations. Later, he did not find the machine of any benefit to him. Subsequently he obtained complete relief when the left antrum had been drained and polypi removed.

CASE 17.—Man, aged 27. (Guy's, 1935, No. 6117.) Asthma for eight months. Sensitive to dust, hair, and feathers. Machine tried five or six times, was of no value.

CASE 18.—Woman, aged 31. (Guy's, 1936, No. 112.) Asthma since 14½ years old; did well with ephedrine. Sensitive to kapok and wool. Tried machine at 2½ and 5½ in. pressure—no effect. Right ventricle was beating forcibly and radiography showed enlarged pulmonary infundibulum.

CASE 19.—Man, aged 40. (Guy's, 1936, No. 817.) Asthma since being gassed in the war in 1918. Hay-fever in August, 1935; his skin was markedly sensitive to plantain, less so to various other extracts. Machine helped him while using it; but dyspnœa came on again after its use. There was no severe attack of breathlessness at the time.

CASE 20.—Woman, aged 56, under the care of Dr. G. S. Lund. Asthma for seven months. Old tuberculosis in lungs. She obtained relief on one occasion from machine and attack was arrested; but later machine did not stop attack, though breathing was more comfortable while using it. Relief obtained from adrenaline spray with oxygen.

GENERAL HEART FAILURE.

CASE 21.—Man, aged 55. (Guy's, 1934, No. 9655.) Myocardial degeneration, emphysema, chronic bronchitis, diabetes. Winter bronchitis for 24 years. Ill for three months. Œdema of lungs and lower limbs. Orthopnœa; no nocturnal attacks. Treatment with machine for 20 minutes caused lowering of pulse-rate; but he felt no better. Later some improvement with oxygen tent.

PHTHISIS

CASE 22.—Woman, aged 49. (Lewisham Hospital, April, 1935.) Very ill. Sudden dyspnœic attack at 5.15 P.M. Definite relief during a quarter of an hour's treatment; died next morning.

CONCLUSIONS

1. Acute left-sided ventricular failure causes pulmonary congestion and œdema; paroxysmal dyspnœa (cardiac asthma) provides the usual symptomatology; acute left-sided failure may be a factor in some cases of bronchial asthma.

2. The "pulmonary plus pressure machine" has been devised for treating the condition.

3. By means of the machine some relief was obtained in seven cases of paroxysmal dyspnœa (cardiac asthma); in three of these cases (Nos. 1, 2, 4) later applications were not so successful. In one case recovery from an attack was dramatic. The machine was helpful in two cases of Cheyne-Stokes' breathing (Nos. 8, 9).

4. Out of 11 cases of asthma good results were obtained in three cases (Nos. 11, 12, 13); in one of them the result was dramatic. There was some relief in five cases; no relief in three (Nos. 14, 17, 18).

5. No benefit was obtained when there was generalised heart failure (Nos. 4 and 21). One patient shortly before death from phthisis obtained relief in a dyspnœic attack (No. 22).

I should like to thank Dr. Maurice Campbell and Dr. Humphrey Nockolds, medical superintendent of Lewisham Hospital, for allowing me to quote cases where this treatment was carried out. The incidental expenses of this investigation were defrayed by a grant from the Medical Research Council.

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Clinical and Laboratory Notes

NEW METHODS FOR DETECTING FLUID IN THE SEROUS CAVITIES

BY ROBERT L. PITFIELD, M.D.
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THERE seems to be hardly any need for a new sign to prove the presence of fluid in the pleural cavities. Aspiration is the most certain of all methods and radiography is very valuable, though it sometimes fails if the fluid is small in amount. It is therefore not always easy to find fluid in spite of the number of signs.

I have found a new sign that has proved very reliable in the hands of many medical friends and myself. Since I first described it[1] several new developments led me to give a further description; notable among these is the occasional absence of the sign when there is known to be fluid, and it seems important to explain how this may happen because it enhances its usefulness.

THE METHOD

It might well be called the diaphragm sign, since this organ of respiration plays the most important part in its mechanism. It consists first in collecting the fluid into as limited a space as possible on the diaphragm by having the patient sit up in bed. The patient should now lean forward a little. The back of the thorax over the suspected area is percussed with the finger tips of one hand, the other hand palpates the quadratus lumborum muscle on the same side. This will cause the collected fluid to vibrate, and the vibrations are felt by the palpating hand on the muscle.

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[1] Jour. Amer. Med. Assoc., 1932, xcix., 582.

Why these vibrations are transmitted to the muscle is explained by the well-known principle of hydraulics, *that any pressure communicated to fluid in an elastic* vessel or inelastic one will be distributed in every direction; the impulse of a blow will have a similar effect. When the chest is vigorously percussed over the fluid, vibrations in the latter will affect the diaphragm, which is inserted all around the chest and particularly to the ribs. It is attached by the arcuate ligaments to the twelfth ribs, into which the quadrati lumborum are inserted. Leaning forward increases the tension in the quadrati and sitting upright puts weight upon the diaphragm. When the diaphragm vibrates, the ribs—and therefore the quadrati—take part in the motion. I believe that these motions are magnified by a leverage effect, the rib serving as a fulcrum.

The vibrations may be completely abolished under certain conditions. If the patient will draw a long breath and hold it, none will appear in the muscle, even in the presence of fluid, because the inflated lung presses upon the taut diaphragm and damps all vibrations. If under the fluid there is consolidated lung or a neoplasm in its lower lobe, generally but not always these will quench vibrations in the same way as the distended lung. It is easily understood also how old adhesions attached to the lung and diaphragm will also cause the sign to be negative, though I have no post-mortem evidence yet to prove this conjecture. The absence of the sign when fluid is known by other methods to be present ought to lead the examiner to conclude that there may be diseased lung present under the fluid—pneumonia, for example, in acute conditions. This contributes more value to the sign. The only other way of determining this fact is either by draining the pleural cavity of all fluid and finding bronchial breathing and dullness in the suspected lung or by radiography.

As examples of cases with fluid in the pleura in which the sign is absent, I briefly quote two.

The first was a woman with an enormous amount of fluid in one pleural sac requiring four aspirations. I could not detect any quadratus vibrations when the chest was percussed; after draining the cavity and taking radiograms, an old unresolved pneumonia was found in the lowest lobe.

In the second woman several aspirations had removed fluid; radiograms and metastasis to glands in the neck showed that she had an endothelioma in the lung above which fluid had been removed. These two processes had damped the vibrations by pressing on the diaphragm.

FLUID IN THE ABDOMEN

The examination of a patient for ascites can be done much more easily and accurately by causing the patient to sit upright in bed, rather than to lie flat on his back. The fluid is thus gathered into one place, and presses upon the entire circumference of the abdominal wall; the intestines are floated up out of the way and cannot absorb the percussion impulses; and, lastly, no third hand is needed to compress the abdomen and the floating bowels as when the patient lies supine. The height of the fluid may be noted from time to time by this method by marking the lowest place where the percussion impulse is felt. By percussing one of the quadrati muscles and palpating the anterior abdominal wall small amounts of fluid can thus be detected. The succussion splash may be readily palpated. When the patient lies flat, however, the fluid, if small in amount, is separated by the spine into two sulci on either side of it.

ACUTE INVERSION OF THE UTERUS FOLLOWING VENTROFIXATION

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Mrs. A., aged 30, had had one previous normal confinement, at the General Lying-in Hospital, in 1927. A uterine operation, described as a low ventrofixation, had been performed elsewhere in 1933.

She attended for antenatal care on Jan. 31st, 1936, and a persistent tachycardia was the only abnormality noted until May 29th, five weeks before term, when she had a small hæmoptysis. On examination at this time she was short of breath and her pulse-rate was still fast, varying between 100 and 130. Her heart was not enlarged, and no diastolic murmur or thrill was detected; but a tentative diagnosis of rheumatic myocarditis was made, and this was supported by a "mitral facies" and a history of previous rheumatic pains. Her condition improved greatly with rest in bed.

Labour started spontaneously at term, and a live baby weighing 7½ lb. was born naturally six hours after the onset of pains. The placenta and membranes followed ten minutes later, together with a retroplacental clot of 32 oz. The cord was 21 in. long. The patient expelled the placenta spontaneously (as in her previous labour), and no fundal pressure whatever was employed. Her condition up to this time remained excellent. Ten minutes later, however, she suddenly became pale and rapidly developed all the features of profound shock, with a pulse which was barely perceptible; she was also cyanosed. A slight uterine hæmorrhage now began. The uterus was contracting badly, was difficult to control, and felt abnormal, an anterior ridge being palpable. The abnormality was wrongly attributed to the previous ventrofixation. At this point the diagnosis was extremely difficult, and seemed to rest between cardiac failure, obstetric shock aggravated by the hæmorrhage, and rupture of the uterus. In view of her desperate condition, all that could be done was to treat the shock, but in spite of all efforts she died two hours later.

Anterior view of uterus and bladder. The arrow marks the fibrous band of the ventrofixation.

Post-mortem examination showed partial inversion of the uterus, the inversion extending nearly as far as the cervix, and being prevented from completion by the fibrous band of the ventrofixation. The ovaries and tubes were just disappearing into the cavity of the inversion (see Figure). The heart valves were normal, but the myocardium was soft and friable. The lungs were normal, and no other abnormality was found, apart from pallor of all organs. The cause of death was given by the pathologist as shock.

(1) This case emphasises the spontaneous origin of the inversion. Blair-Bell[1] states that acute inversion is usually spontaneous, being caused by "the peristaltic action of the uterine musculature." In this case all extraneous causes of inversion, such as fundal pressure or traction on the cord, have been eliminated; for the patient expelled the placenta entirely by herself. Furthermore, the symptoms of shock did not come on until ten minutes later. (2) It seems clear that the previous ventrofixation prevented the inversion from becoming complete, and thereby obscured the diagnosis. It is possible that it was a factor in starting the inversion, by interfering with uterine retraction. I can find no other record of inversion of a uterus on which hysteropexy had been performed. (3) The cardiac weakness further obscured the diagnosis, and may have hastened the patient's death.

I am indebted to Dr. J. P. Hedley for permission to publish this case; and to Dr. D. C. L. Derry who performed the post-mortem.

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[1] Blair-Bell, W.: Jour. Obst. and Gyn. Brit. Emp., 1930, xxxviii., 310; see also Giles, A. E.: Proc. Roy. Soc. Med., 1930, xxxiii., 1170; and Cook, J.: THE LANCET, 1935, ii., 884.

TREATMENT OF BURNS AND SCALDS WITH A SILVER NITRATE OINTMENT

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Apart from very grave and extensive burns and scalds which have to be admitted and treated in hospital, there are many that the practitioner has to treat in the patient's home. In such cases it is of the greatest importance to use a method of treatment that does not cause the patient much pain, and is at the same time aseptic and healing, simple and inexpensive. The gravity of burns and scalds depends upon the extent of the skin surface involved rather than on the depth of destruction of the tissues. On the other hand, the deeper the burn the slower will be the healing. The degree of a burn depends on the temperature of the flame, substance, or liquid causing the burn and the length of time it is in contact with the skin. Thus the presence of burning clothes, or clothes saturated with some scalding liquid, intensifies a burn because the time that these are in contact with the skin is generally longer than if the flame or scalding liquid came in contact with the bare skin.

Scalds are the commonest accidents in daily life, especially among housewives, servants, and children. These are usually of the so-called first or second degree, whereas burns by fire are usually of the third or necrotic degree. Extensive burns are very often accompanied by general symptoms, fever, prostration, and symptoms of loss of fluid.

In this note I shall refer only to the local treatment of burns and scalds. Many methods have been recommended: solutions of silver nitrate, bismuth as an ointment or powder, oil liniments, ambrine, and recently tannic acid as a spray. In my department a treatment based on the use of silver nitrate in an ointment has been used for about 25 years with the most gratifying results. This method is very simple and inexpensive, causes the patient very little pain, and promotes rapid healing of the burn. The composition of the ointment is as follows: silver nitrate, 0·25 g.; distilled water, 25·0 g.; olive oil, 25·0 g.; and wool fat (adeps lanæ), 50·0 g.

After cleansing the burn with sterile normal saline and removing the vesicles, a thick layer of this ointment, smeared on a piece of old soft linen, is applied. This is covered with an impermeable material such as Mosetig batiste or oil-silk and the whole dressing held in place by a gauze bandage. The ointment is renewed once a day, the burn being cleansed with normal saline at each dressing. Healing usually proceeds very rapidly, and the resulting scars are very satisfactory.

Long experience with this silver nitrate ointment has led me to regard it as the best practical treatment of burns and scalds not severe enough to necessitate admission to hospital.

MEDICAL SOCIETIES

MEDICAL WOMEN'S FEDERATION

PSYCHOLOGICAL GROUP

At the Eleventh Annual Conference of this group held at Sheffield on Oct. 3rd, Dr. Doris Odlum being in the chair, a discussion on

Delinquency

was introduced by Dr. Helen Boyle, Dr. F. E. E. Schneider, and Dr. Elizabeth Bunbury.

Dr. Boyle made an appeal for the psychological examination of all first offenders, and a psychological assessment of their delinquency or crime, in addition to that made by the law; such investigation to be obligatory in the case of child offenders, optional in the case of adults. She pointed out that the same crime as committed by different persons was not the same crime, nor the outcome of the same causes. Thus, delinquency might be an expression of incipient brain disease, of mental defect and retardation, of reaction to intolerable emotional situations, or of sheer lack of normal outlet in otherwise normal children. Under the present system a person might be convicted a great number of times before certain underlying psychological necessities for his conduct were laid bare—a recurrent expense to society which timely psychological investigation would have saved.

In the discussion which followed, Dr. Helen Wilson, J.P., pointed out the increasing number of cases (such as those concerned with minor motoring offences) which hardly seemed to warrant so sweeping a recommendation as psychological examination of all first offenders.—Dr. Mildred Creak remarked that "ten minutes with a psychiatrist" was hardly adequate; nothing but a very thorough investigation could be of practical use.

Dr. Schneider analysed the factors making for delinquency; the causes, he said, no one knew. Endogenous factors included heredity, mental deficiency, mental disorder, and bodily ailments. Mental deficiency played an important part in delinquency. A striking group of case-histories pointed to a definite connexion between physical disorders such as pulmonary tuberculosis and delinquency with general intractability. The post-encephalitic might get into the hands of the police without it being suspected that he had ever had an attack of encephalitis; experience at Rampton showed that the after-effects may not declare themselves for 12 years or more. Exogenous factors might be grouped under the varying environmental situations comprised by the home, the school, the street, and workshop. School could be regarded as the first line of defence against delinquency; there should, he thought, be a better classification of school-children. The greater frequency of delinquency amongst males than females had never been satisfactorily explained.

In the discussion Prof. A. E. NAISH pointed out the great difficulty of defining the borderline of mental deficiency, and of dealing with borderline cases whichever way one's decision tended.—Dr. SCHNEIDER, amplifying an earlier statement, said what was needed was a school (or even a class in a school) for children intermediate in standard between the ordinary and the special school, where their needs could be more adequately met than was at present at all possible.—Dr. M. BARTON HALL said she rarely met with delinquents having parents with criminal records, but factors such as alcoholism, marital infidelity, and the disrupted home were very frequent. She explained the difference in the numbers of female and male offenders by the fact that up to the present, at any rate, the home had been the focus of the girl, both as child and adolescent, claiming her interests and spare time, while the wider sphere of activity and greater adventurousness of the boy provided him with more opportunities of coming into conflict with the law.

Dr. BUNBURY said there were 400,000 known criminals in the United States, and this figure represented only about 8 per cent. of those engaged in crime. America had made a beginning where the beginning logically lay, namely, with the child delinquent. Comparatively little was done for the adult in a preventive way, though reclamatory methods were adopted in certain states. The American system, she said, tended to be more flexible than our procedure, was less tinged with officialism, and provided time and opportunity for thorough investigation. She described in brief the children's court and the reformatory school, together with the working of such remedial measures as foster-home treatment. On the whole she felt that in America, although investigation outstripped therapy, important advances were being made.

REVIEWS AND NOTICES OF BOOKS

Modern Treatment of Diseases of the Respiratory System

By A. LISLE PUNCH, M.B., M.R.C.P., Senior Physician to the Royal Northern Hospital; Physician to Brompton Hospital for Diseases of the Chest; and F. A. KNOTT, M.D., M.R.C.P., D.P.H., Director of the Bacteriological Department, Guy's Hospital. London: J. and A. Churchill Ltd. 1936. Pp. 295. 15*s*.

THIS sensible book is designed for the general practitioner and the senior student reaching the house-appointment stage. It is clearly and concisely written, and though quite up to date does not put too much emphasis on methods of treatment whose merits are not yet adequately established. Among the best chapters is that on the pneumonias, in which practical details are given on the administration of serum treatment and the arrangement of the oxygen tent. The postural treatment of pulmonary abscess, the technique of washing out the pleura in cases of empyema, and the indications for operation in both conditions are clearly described.

Several chapters are devoted to the treatment of pulmonary tuberculosis; useful information on the induction and management of artificial pneumothorax are given, as well as on its indications, whereas with the major operations of thoracic surgery the indications alone are considered in detail. It is rather surprising to find more than eight pages devoted to oleothorax, a procedure on which the writers do not appear to be enthusiastic, whereas the more common operation of simultaneous bilateral pneumothorax receives no more than a passing word of condemnation. We make no complaint of a somewhat dogmatic attitude in a book of this kind, since its readers require definite guidance rather than guarded statements; but such an attitude leads from time to time to opinions the expression of which could easily be attacked. The statement that the risk of pleural shock is considerably diminished by local anæsthesia is open to doubt, for instance, in view of the practice, almost universal in many countries, not to give a local anæsthetic for refills.

This book contains a number of hints for the house physician or practitioner, but omits some useful ones: for example, the procedure of tying in a needle, which is essential in the really bad valvular type of spontaneous pneumothorax is not mentioned, nor is the small but important detail, after the aspiration of purulent effusions, of making the patient lie on the unaffected side, so as to reduce the risk of needle track infections. As a whole, however, the book fulfills admirably its object of providing practical instruction on a difficult and rapidly changing subject. A special word of praise must be given to the choice and reproduction of the X ray films which illustrate it.

Neurological Surgery

By LOYAL DAVIS, M.S., M.D., Ph.D., D.Sc., Professor of Surgery, Northwestern University Medical School, Chicago, Illinois. London: Henry Kimpton. 1936. Pp. 429. 28*s*.

THE advances in neurological surgery during the past thirty years have been recorded in innumerable monographs and journals, but we have not had in English a comprehensive review of the subject suitable for the medical student and the general practitioner. Prof. Davis has set out to supply this need, and his book gives a very fair impression of the opinions held by those who have made a special study of this branch of surgery, and will be helpful to those who have not been able to keep pace with its latest advances. The chapters on brain tumours and on the injuries of peripheral nerves are excellent. Prof. Davis has drawn upon his wide personal experience to the great benefit of his readers, and these chapters are so well illustrated by drawings and microphotographs that of themselves they should entitle the book to a place in the practitioner's library. The chapter on intracranial abscess, though it brings out clearly the modern view that it is wiser not to regard this condition as a surgical emergency, fails to give the reader a clear idea how to choose the right time for operation; and a similar vagueness about the general management of cases of injury to the brain and spinal cord detracts considerably from the practical value of these sections of the book. It should be possible to state in fairly simple terms what the practitioner must look for in cases of suspected injury to the brain or spinal cord, and then to lay down definite rules for the appropriate treatment of certain syndromes, and it is such dogmatic teaching that students and practitioners require.

In the chapter on tumours of the spinal cord most of the important features are mentioned, but it remains for the reader to work out the exact method of establishing the fact that a given paraplegia is due to a progressive compression of the cord, and we feel that this should have been done for him by the author. Only 20 pages have been allotted to the surgery of the autonomic system, which might just as well have been omitted altogether. In its present form this book may be regarded as a sound basis upon which to build up a knowledge of neurological surgery, but a careful revision with expansion of certain sections would certainly increase the practical value of a future edition.

Applied Physiology

Sixth edition. By SAMSON WRIGHT, M.D., F.R.C.P., John Astor Professor of Physiology, University of London, Middlesex Hospital Medical School. London: Humphrey Milford, Oxford University Press. 1936. Pp. 686. 20*s.*

THE fifth edition of this book appeared only two years ago, and the sixth calls for little additional comment. Once again the author has revised many sections and supplemented the remainder to bring the whole up to date, but this time he has put in more than he has taken out, and the book has grown by 80 pages. This is largely due to the introduction of 90 new illustrations, some of which, like the charts showing the relations of the sterol derivatives, are very valuable for reference purposes. Prof. Wright is tempted to apologise for the increased size, but he may rest assured that the book is improved. It is marred only by exigencies of the examination system, which engenders compression, tabulation, italics, and a rounding of the pegs of knowledge to fit the holes in the student mind. The book remains a feat of authorship, abruptly forsaking each subject for the next lest there be not space for everything. One feels that it might have been a classic, and it has seen six editions in ten years, has been thrice reprinted, and its positive virtues outweigh its negative shortcomings. It is crammed with information of interest and value to the student entering upon his clinical studies, throwing a new light on these and on physiology. We stated recently that Prof. H. E. Roaf in his text-book managed the transition from preliminary sciences to physiology unusually well; Prof. Wright's book is unique in bridging the gap between physiology and medicine. Both types of book are necessary. In his preface Prof. Wright says: "the teacher (of physiology) should bear in mind that he is giving instruction to men who, in the main, will become doctors. . . ." He should also remember that the student comes from his premedical courses knowing virtually nothing about the body; in the short period of 18 months or so he has to learn a completely new language so thoroughly that in his subsequent work he thinks in terms of nothing else. In view of the somewhat missionary flavour of Prof. Wright's preface to the teaching of physiology in general, we must confess that we still feel that his is not the book for the junior student, invaluable though it may be later. Medical education owes a great debt to Prof. Wright, but to abandon method for matter is to sell its birthright, and to thrust the student too precipitately into the study of applied physiology is to substitute the acquisition of knowledge for education. The book removes the student's complaint that he is suddenly pitchforked into the bewildering maze of clinical work; let it not introduce the grievance that he is suddenly pitchforked from the sedateness of pure science into the turbulence of physiology.

Biology and the New Physics

By C. J. BOND, C.M.G., F.R.C.S., F.L.S., Hon. Consulting Surgeon to the Leicester Royal Infirmary. London: H. K. Lewis and Co., Ltd. 1936. Pp. 67. 2*s.* 6*d.*

Mr. Bond of Leicester, like many other people, would prefer a consistent interpretation of the whole of human experience. He is dissatisfied and disturbed at the mixture of deterministic and indeterministic explanations which is offered at present, and in his presidential address at the centenary meeting of the Leicester Literary and Philosophical Society he proposes a plan of reconciliation. He suggests that the actions of the most elementary particles were (and are) free and at random; as complexity increased, and in consequence, heterogeneity replaced homogeneity, restrictions of environmental origin began to come in and the common-sense relation of cause and effect prevailed; finally, in association with life and mind, random action came to be controlled by the organism rather than by the environment and we reached volition and purposive behaviour. His argument, like most such arguments, is not altogether convincing, but it is interesting in itself as well as in being the considered opinion of a great doctor who has fruitfully explored many fields of thought and experiment.

A Treatise on Materia Medica and Therapeutics

Including Pharmacy, Dispensing, Pharmacology, and Administration of Drugs. By the late RAKHALDAS GHOSH. Fourteenth edition. By BIRENDRA NATH GHOSH, F.R.F.P. & S. Glasg., Professor of Pharmacology, Carmichael Medical College, Calcutta. London: H. K. Lewis and Co., Ltd. 1936. Pp. 724. 12*s.* 6*d.*

IN his introduction to this work Prof. Ghosh deplores the modern neglect of materia medica proper, and this subject as well as pharmacy and dispensing is fully discussed. On the other hand the more purely chemical aspects are relatively neglected, and a book so complete in other respects would be improved by the inclusion of structural formulæ for many alkaloids and for synthetic drugs. As one would anticipate in a text-book intended primarily for use in India, chemotherapy and parasiticides are particularly well treated. Chapters are devoted to vaccine and serum therapy, and radiation therapy. An interesting section deals with drugs indigenous to India, most of which are unknown in this country. The book has been brought thoroughly up to date. Numerous drugs recently introduced into medicine, such as evipan and other new barbiturates, ergometrine and coramine receive due notice. The modern physiological division of the autonomic nervous system into cholinergic and adrenergic fibres is also mentioned. Unfortunately this conception is not constantly applied throughout the book and eserine is stated in several places to act by stimulating parasympathetic nerve-endings, whereas it is now generally believed to act by preventing the enzymic destruction of acetylcholine liberated at cholinergic nerve-endings.

A considerable portion of the work is in small print and a large amount of information has been packed into its pages. There are certain loose statements—e.g., few would consider psoriasis to be a syphilitic disease (p. 483)—and too many misprints, but the general outlook both in pharmacology and therapeutics is thoroughly in accord with modern teaching in this country.

Annual Review of Biochemistry

Vol. V. Edited by JAMES MURRAY LUCK, Stanford University, California. Annual Review of Biochemistry Ltd. 1936. Pp. 640. $5.

THIS annual publication has come to be regarded as the most important biochemical review. The careful selection of subjects on which the most recent advances are being made enables one to follow what progress has been accomplished from year to year. The subjects in general are similar to those dealt with in last year's review, although a different selection of contributing authors has been made. The chapters on oxidations and reductions by D. E. Green and D. Keilin and on enzymes by J. H. Quastel contain a competent summary of recent work on these rapidly progressive subjects. A new section on X ray studies of the structure of compounds of biochemical interest, by O. L. Sponsler and W. H. Dore, briefly describes the importance and recent results of the application of this method for determining steric configuration of crystalline substances. The chapter on hormones is by E. A. Doisy and D. W. MacCorquodale and covers this large and difficult field in an efficient manner. The references appear to have been carefully selected and include most of the important articles published during the previous year. The extensive research on the vitamins has led the editor to divide the subject into water-soluble and fat-soluble vitamins. These are reviewed by H. von Euler and by E. V. McCollum respectively. The clinical application of biochemistry is adequately described by J. P Peters, C. L. Robbins, and P. H. Lavietes.

This brief synopsis of important biochemical research has become a necessary addition to the libraries of all biological workers as a reference guide.

Medical Mycology

Fungous Diseases of Men and Other Mammals. By CARROLL WILLIAM DODGE, Ph.D., Mycologist, Missouri Botanical Garden; Professor, Henry Shaw School of Botany, Washington University, St. Louis. London: Henry Kimpton. 1936. Pp. 900. 42*s*.

MEDICAL mycology is a subject which has suffered a good deal from lack of coördination among its exponents. Its literature includes a great deal of unsound matter, since persons having no special knowledge of fungi have not hesitated to name "new" species and to describe them in terms often inadequate, while the evidence of pathogenicity is often unsatisfactory. To compile a sound text-book from such material demands a special knowledge of both systematic mycology and animal pathology, a combination rarely found in one person. Unfortunately in this book the subject is dealt with almost exclusively from the viewpoint of the systematic mycologist and, for this reason, the sub-title is rather misleading.

Prof. Dodge has clearly made an exhaustive survey of the literature of medical mycology and from this material he has elaborated a classification which, although open to certain objections, is a welcome attempt to reconcile many of the existing, and sometimes conflicting, systems. The classification of fungi of medical interest presents special difficulty, for almost all of the pathogenic species are imperfect and many of the parasitic forms exhibit further morphological degradation. In classifying the yeast-like fungi Dr. Dodge has depended largely on the published reports of physiological characters, in default of morphological descriptions, and this has led him to adopt the novel method of grouping the species into those which possess a certain property, those which do not possess this property, and those about which the literature is deficient on this point. In other instances the differentiation of species depends upon the part of the body from which the fungus was originally cultivated.

A drastic weeding out of unauthentic and redundant species followed by a considerable amplification of familial, generic, and specific descriptions, with citation of authority in all cases, would have greatly improved this work. Even in its present form it may be recommended to advanced students of mycology and research workers to whom the full and up-to-date bibliography should prove especially valuable.

REPORTS AND ANALYSES

ERGO BISCUITS—STARCH REDUCED

(POLLEY AND CO., LTD., 44/54, PLYMOUTH-ROAD, LONDON, E.16)

THE box examined contained 19 biscuits, each piece weighing 0·45 oz. The flavouring used was cheese. When analysed the following results were obtained :—

Water..	7·26	per cent.
Fat	14·60	,, ,,
Ash	1·84	,, ,,
Protein	37·40	,, ,,
Crude fibre	0·10	,, ,,
Altered starch (carbohydrates) ..	38·80	,, ,,
Calorie value per lb.	2030	

Compared with ordinary bread calculated to the same moisture content—i.e., from 40 to 7 per cent.—these biscuits contain half the amount of altered starch (carbohydrates), ten times the amount of fat, three and a half times the protein, and a 20 per cent. higher calorie value. The necessarily somewhat uninteresting and dry flavour of such a product is ingeniously ameliorated by the addition of cheese or celery. There are also sweet or dry varieties. These biscuits should prove of value in the many conditions in which the intake of carbohydrate food has to be restricted.

SALFORD ROYAL HOSPITAL.—Lord Stanley, on Oct. 10th, laid the foundation-stone of the extensions to this hospital. A three-storeyed block is being built for orthopædic purposes, a two-storeyed one for the treatment of fractures, and an accident and casualty department where patients can be treated in privacy. The cost of the extensions has been subscribed, but money is needed for furnishing and equipment. Lord Stanley also declared open a new car department.

THE LANCET

LONDON: SATURDAY, OCTOBER 24, 1936

FEVER THERAPY

It is accepted, we believe, on both sides of the Atlantic, that the average Briton is more conservative than the average American, or, alternatively, that the average American is more progressive than the average Briton. Each of us believes more or less secretly in the superiority of our own point of view, but fortunately neither of us has the least desire to make converts. By turns we ignore, profit by, or make fun of our differences, but only rarely do we become truly supercilious. This is fortunate in the field of medicine, where the price of prejudice is human life, and in which a tradition is preserved which transcends national differences. Experiments whose only merit is the enthusiasm with which they are prosecuted probably have a somewhat longer "run" in the United States than they would be allowed in this country, but it might justly be retorted that we are a little reluctant to make large experiments on our own account. The balance is quickly restored, as a rule, by reference to an unfailing criterion: the good of the patient.

In one branch of therapeutics, that of artificial pyrexia, the balance has remained heavily weighted on the American side for an unusually long time, and it shows little sign of returning to a neutral position either by an abandonment of the treatment in America or its adoption here. The period of indiscriminate trial seems already to be finishing, and a perusal of recent American writings reveals that the treatment is now established, the conditions in which it is most useful fairly well known, and its technique becoming adapted to the type of case treated. A review, impartial and moderate in tone, by GLADYS TERRY, of the Neurological Institute, New York,[1] assesses the results in several diseases, and then indicates the methods available for artificially raising temperature, the precautions and contra-indications to be observed, and the possible accidents. These need not be described now, but the general principles, which we have discussed on previous occasions,[2] suggest that here is a form of therapy which is much safer to test than, for instance, a new drug. Few hospitals are without equipment which could be adapted for raising temperature (although the more primitive the apparatus the greater is the need for strict supervision and continuous observation of the patient), and all trained nurses are familiar with the means of reducing temperature. Provided the patient has been suitably prepared and is not suffering from anything predisposing to sudden collapse, such as cardiovascular or renal degeneration, untoward effects can be avoided by prompt emergency measures to reduce temperature as soon as unusual symptoms appear. The superiority of physical methods is illustrated in a paper on the treatment of tabes dorsalis by A. E. BENNETT,[3] which contains a brief but interesting historical introduction. NEYMANN and KOENIG are quoted as having had a mortality of 18 per cent. from malarial treatment, 10 per cent. from ratbite fever, but none from diathermy. BENNETT himself, while making no extravagant claims, believes that this method of treating tabes is the best yet devised, and emphasises its value in relieving lightning pains and gastric crises, thereby making it unnecessary even to consider such drastic measures as chordotomy. The claims put forward for hyperpyrexia in the treatment of neurosyphilis and gonorrhœa are, however, well known, and our object here is not so much to urge these claims as to suggest that if simple precautions are taken there is no reason why they should not be widely investigated.

NEYMANN, BLATT, and OSBORNE[4] report striking results from the treatment of 25 cases of chorea. In all, the choreic movements ceased promptly; the average time in hospital was 16 days and the average number of treatments was four per patient. Several of these cases were severe, some were of long standing, and only three had any relapse. With the reservation that two of the patients had been discharged from hospital only one and two months when the paper was written, the record is extraordinary. The paper is also interesting in that it describes the most up-to-date method of raising temperature (electromagnetic induction by high-frequency current) and a special air-conditioned chamber that encloses most of the patient and adds materially to his comfort. The method is peculiarly adapted to chorea because of the movements of the patient, the flex conveying the current being simply laid over the bedclothes or under the mattress. Other conditions in which relief has been claimed are the various lesions classed under arthritis and fibrositis, asthma, disseminated sclerosis, post-encephalitic states and schizophrenia. These claims are not so impressive, but there is a case for the use of moderate fever, if not hyperpyrexia, in the relief of asthma. Although agreement is lacking about the permanency of the effect, nearly all cases are benefited for a time.[5] In this disorder particularly the influence of the treatment will be partly psychological, but none can doubt that fever is also physiologically powerful. Yet though much has been written on the "physiology" of hyperpyrexia and the possible effect of changes in the composition of the blood, sweat, and urine, the reason for its beneficial action remains a mystery. Perhaps its action in syphilis should be excepted, for the *Spironema pallidum* is known to succumb to a lower temperature than does the human body. Otherwise, the most likely factor is probably the increased rate of metabolism of the tissues, which may convert a passive into an active resistance. It is noteworthy that most of the conditions benefited are those which become chronic.

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[1] Terry, G. C.: Bull. Neurol. Inst., N.Y., 1936, iv., 707.

[2] THE LANCET, 1934, i., 1075 and 1129; 1934, ii., 606 and 1236.

[3] Bennett, A. E.: Jour. Amer. Med. Assoc., Sept. 12th, 1936, p. 845.

[4] Neymann, C. A., Blatt, M. L., and Osborne, S. L.: Ibid., Sept. 19th, 1936, p. 938; see also Metz, M. H.: Ibid., May 9th, 1936, p. 1658.

[5] Jour. Amer. Med. Assoc., August 1st, 1936, p. 384 (abstract); see also Terry and Metz (above references), and THE LANCET, 1935, ii., 201.

INHIBITION OF ANTERIOR PITUITARY FUNCTIONS

Two articles in our present issue describe attempts to influence non-reproductive functions in human beings by administration of female sex hormone. Both pieces of work are based on —and serve to test—the hypothesis that a single hormone can so affect the anterior pituitary that more than one of its numerous functions is inhibited. Since Moore and Price in 1930 suggested that œstrin suppresses the gonadotropic function of the anterior pituitary, experiments on animals have amply confirmed the supposition as regards the action of large amounts of œstrin. On the other hand, small amounts of œstrin appear to stimulate the anterior pituitary. This assumption of paradoxical action has reconciled apparently contradictory results recorded in this field of investigation, but there is as yet no clue to the physiological mechanisms involved. The inhibition of the gonadotropic function by large doses of œstrin has been demonstrated clinically by several workers, and examples may be drawn from Prof. Bernhard Zondek's paper in our issue of Oct. 10th and from the paper by Dr. Jones and Mr. MacGregor in the present issue. Zondek observed that menstruation was suppressed by injections of 100,000 to 200,000 mouse units of œstrin between the sixth and twenty-fourth days of the cycle; Jones and MacGregor note that 500,000 M.U. given during 20 days caused the disappearance of gonadotropic hormone from the urine of elderly women.

The conception of gonadal-gonadotropic antagonism has been considerably extended, particularly by Zondek and by Cramer and Horning,[1] to account for the effects of excessive œstrin on other endocrine functions controlled by the anterior pituitary. According to Cramer and Horning the ultimate functional effect of the prolonged application of œstrin is a condition closely resembling that following hypophysectomy. On the assumption that the chromophil cells are responsible for secreting the specific hormones of the anterior lobe, the general condition of hypopituitarism and the extensive changes in the endocrine organs produced by œstrin are explained by the disappearance of these chromophil cells. (Zondek attributes it rather to "blocking" of their secretion.) The possible clinical application is this: can we not use œstrin to inhibit anterior pituitary function—to bring about the equivalent of a partial hypophysectomy—and so relieve some endocrine organ from the excessive stimulation from which it is suffering? The initial difficulty is that suppression of the chromophil cells by œstrin does not inhibit the production of all the pituitary hormones equally. Zondek has demonstrated particularly clearly the succession of effects, first on the gonadotropic function, later on the growth hormone. The order in which other functions are affected remains to be determined. The paper by Jones and MacGregor leads to the conclusion that the gonadotropic function of the anterior pituitary can be considerably disturbed without affecting the control of carbohydrate metabolism to such an extent that any change in glucose tolerance is perceptible.

Finally we come to Dr. Spence's bold attempt to attack the cause of toxic goitre. This rests on two assumptions—namely, that toxic goitre is due to over-stimulation of the thyroid by excess of pituitary thyrotropic hormone, and that production of thyrotropic hormone by the human pituitary can be appreciably depressed by the daily administration of 50,000 international units of œstradiol benzoate over a period of two or three weeks. The experimental studies on inter-relations of the thyroid and gonads and anterior pituitary, which are well reviewed by Spence, fully justify his investigation, but his result is a clear negative to the possibility of improving the clinical condition by giving œstrin in the amounts employed. It is still possible that the various links in the chain of hypotheses which led to this work are sound, and that thyrotoxicosis could be alleviated by œstrin, although perhaps in such massive doses that the pituitary functions would be reduced to chaos. Against this possibility we have the preliminary statement of Zondek that prolonged administration of œstrin does not inhibit thyrotropic function at all, but may indeed stimulate it.

AN EVALUATION OF ARTIFICIAL PNEUMOTHORAX

Clinicians in general show a profound mistrust for statistics compiled by their colleagues. In the latest volume published by the Medical Research Council[1] Dr. Bentley has taken care not to commit any of the seven deadly sins of medical statisticians—as he aptly describes such errors as paucity of material, selection of cases, precipitancy, false control, equivocation in definition, failure to trace a sufficient number of patients, and lack of clinical detail. His report covers 677 cases treated at L.C.C. hospitals by artificial pneumothorax and followed up for a period of at least three years; 411 of them have been observed for five years or more. The results classified according to age, sex, extent of disease, degree of collapse, condition of better lung, persistence of T.B. in the sputum, and home conditions are compared with a conservative group of 3329 cases. These are not looked on as a control group in any strict sense but are regarded as more satisfactory than the method of some writers of contrasting the good effects of pneumothorax with the much less favourable results in cases in which the treatment failed on account of adhesions or had to be given up during the first three months. Dr. Bentley finds that artificial pneumothorax is being applied to about 10 per cent. of all patients now undergoing institutional treatment for pulmonary tuberculosis; he does not think that this figure is likely to be greatly exceeded in future as this method of treatment can only be expected to give good results in carefully selected cases. The survival in the 677 cases investigated was some 20 per cent. higher in the pneumothorax group than the expected number amongst those conservatively treated. Pneumothorax would thus appear to have reduced the total tuberculosis mortality in this series by about 2 per cent. The importance of the degree of collapse obtained is shown by the fact that incomplete collapse cases, which formed 60 per cent. of the whole, showed a mortality of 50 per cent. in the first three years compared with 34 per cent. in the complete collapse cases; with strictly unilateral cases the corresponding figure was 23 per cent. The best results of all were shown by collapse cases (group T.B. plus) which were sputum negative on discharge—of these 90 per cent. were living after three years. The influence of home conditions is of course considerable, but a good collapse in a bad home is shown to be preferable to an incomplete collapse in a good home (56 per cent. alive as compared with 48 per cent.).

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[1] The Lancet, 1936, i., 1056.

[1] Artificial Pneumothorax: Experience of the London County Council. By F. J. Bentley, M.D., M.R.C.P., D.P.H. H.M. Stationery Office. 1s. 6d.

The difficulty of getting a proper control group in dealing with any special method of treatment is almost insurmountable, and the method employed in this publication of comparing the A.P. cases with those conservatively treated, although superior to the false controls previously mentioned, is still far from satisfactory. Selection of cases is, and will long remain, far from standardised; one physician will only advise pneumothorax in strictly unilateral cases after conservative treatment has failed to control the symptoms, but at the same time an equally eminent colleague will consider it the best treatment not only for cases with minimal lesions but also for those advanced cases which have one lung considerably more affected than the other. For statistical purposes of this kind the Ministry of Health classification leaves much to be desired; the separation of the T.B. negative from the T.B. positive cases is rightly insisted on, but the division of the positive cases into three groups chiefly on a basis of physical signs and symptoms must be considered out of date when clinicians are agreed that it is only by radiological examination that an accurate idea of the extent of the disease can be obtained, and that the presence or absence of cavities in sputum positive cases is the chief indication for collapse therapy; for it has been found that a persistent cavity, with or without physical signs or symptoms, is associated with a bad prognosis. The present classification makes no mention of cavities, and the intermediate group B 2 is larger than the other three groups added together and obviously contains cases of widely different prognosis.

As a result of this investigation Dr. Bentley concludes that whilst pneumothorax treatment may in the future be carried out in earlier cases generally, and in young male adults in particular, it is not likely that the total proportion of cases so treated will increase greatly above its present figure of 10 per cent., as indifferent results are being obtained in cases with contralateral disease who now form more than half the total and also in those with incomplete collapse who constitute about half the remainder. The unsatisfactory results in cases with incomplete collapse point to the desirability of increasing the application of surgical methods of collapse to such unilateral cases rather than persisting with an unselective pneumothorax. Although the report may not add much to our knowledge of the comparative values of pneumothorax and conservative treatment, Dr. Bentley's compilation has the merit of providing a large number of carefully analysed and pertinent facts.

THE ROCKEFELLER FOUNDATION

In allocating funds available for distribution the present policy of the Rockefeller Foundation is to apply the greater part to the furtherance of knowledge in selected fields. Although the report for 1935 mentions a host of assisted projects—research in medicine, science, and international relations; the training of nurses, scientists, and administrators; the teaching of basic English; the building of libraries, and so on—it is especially concerned with a few subjects, of which the chief are yellow fever, the application of physical and chemical technique to biological problems, and psychiatry. Surveys of the geographical distribution of yellow fever in Africa and South America have shed new light on the disease. In Africa immunity to it has been found widespread in an area from the coast of Senegal to the White Nile between the latitudes of 16° north and 6° south. This area in its western part includes the great endemic area of the disease, but in the eastern part the illness, except for a single case has not been recognised. Last year the Foundation gave in its *annual report* the first description of "jungle yellow fever," a type occurring in a region close to the other great endemic area, in Brazil. During 1935 this type has been found to be clinically and pathologically the same as endemic yellow fever, but to occur widely and to be independent of the mosquito *Aëdes ægypti*.[1] Whether the disease now presumed to exist in areas of Africa previously considered free will be found to be comparable to jungle yellow fever remains to be seen.

Physical and chemical technique have been used to elucidate among other problems the structure of chromosomes, the fate of fats and fatty acids in the body (observed by ear-marking them with an atom of heavy hydrogen), and the effect of treatments for lead poisoning, measured by spectroscopic determinations of lead in body fluids. Psychiatry comes under a heading of "program of special concentration," and in 1935 about 1½ million dollars was devoted to the subject, for the development of teaching centres, for research, and for the application of psychiatry. The generous grants recently made or offered to the Maudsley Hospital, the National Hospital, and the Galton laboratory are examples in this country of how this programme is being carried out.

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[1] See THE LANCET, 1936, i., 510.

ANNOTATIONS

MIDWIVES AND ANALGESICS

THE Central Midwives Board has now taken action on the report submitted[1] last January by the British College of Obstetricians and Gynæcologists. At the request of the National Birthday Trust Fund the College carried out an investigation to ascertain if there is any form of analgesia which can be used with safety and success by a midwife in the absence of a medical practitioner. The College came to the conclusion that the administration of gas and air by the Minnitt or similar apparatus is a safe and satisfactory method, although the apparatus is expensive and the nitrous oxide costly, and they recommended that its use should be extended to the practice of midwives, provided they are specially trained in its administration. The advisory memorandum now issued by the C.M.B. has been drawn up after consultation with the College. According to Rule E.10 (a) of the C.M.B. a midwife must not, except under a grave emergency, undertake any treatment which is outside her province, and under Rule E.10 (b) she may not on her own responsibility use any drug unless she has been thoroughly instructed in its use and is familiar with its administration. The C.M.B. now states explicitly that it regards the administration by a midwife, acting as such, of gas and air by Minnitt's or similar apparatus, for the purpose of producing analgesia during labour, as treatment within her province. Three conditions are attached to this permission :—

1. The midwife must have received at an institution approved by the C.M.B. for the purpose special instruction in the essentials of obstetric analgesia and must have satisfied the institution that she is thoroughly proficient in the use of the apparatus.
2. She must have a certificate in writing from a registered medical practitioner who has examined the patient within a month of her confinement that the patient is in a fit condition for gas-and-air administration.
3. There must be in the room at the time of administration, in addition to the midwife, one other person being herself a midwife, a State-registered nurse, a senior medical student, or a pupil midwife.

It is understood that the institutions approved for instruction in the use of the apparatus will be those which have coöperated with the College in its investigations, or such of them as are prepared to provide courses. Other institutions will be approved as occasion demands. The C.M.B. does not propose itself to issue regulations for the course of such training but will leave to the approved institutions the responsibility for deciding on its adequacy and on the proficiency of any particular midwife.

The difficulty about expensive apparatus is steadily being lessened by the production of relatively cheap and portable machines and arrangements for distributing gas cylinders to private addresses. The National Birthday Trust Fund is able to state that a portable midwives' model will shortly be available at a price of eight to twelve guineas and that 50-gallon gas cylinders can be supplied, collected and delivered at a flat-rate charge of 3s. 6d. per cylinder. At the Wellhouse Hospital, Barnet, where midwives have for long been trained to use gas and air for their own patients, the cost of nitrous oxide was working out at a little over two shillings per case.

Along with this concession to the midwife to use gas-and-air analgesia is a decision to give effect to the opinion expressed in the report of the College that chloroform should not be used by midwives acting alone. In the advisory memorandum, after setting out the conditions under which gas-and-air analgesia may be used by the midwife, the C.M.B. states expressly that administration by a midwife of any other anæsthetic, otherwise than under the personal direction and supervision of a registered medical practitioner, is regarded as treatment outside her province.

THE PRESERVATION OF SERUM

MOST therapeutic sera are still preserved from bacterial contamination by the addition of tricresol, a disinfectant which though fully reliable has the disadvantage of being distinctly poisonous. Its effects are negligible when only small doses of serum are given, but one cannot escape the belief that when large volumes are given, especially by intravenous injection, the action of the tricresol in the serum must be placed on the debit side of what is usually in any case a rather complicated account. Where a serum has been shown actually to diminish the likelihood of recovery its ill effect has usually been attributed wholly to the large amount of foreign protein introduced; but so far as we know there is nothing against the view that the preservative is partly responsible.

There are many disinfectants which in a general way are much more efficient and less toxic, either relatively or absolutely, than tricresol, but it appears also to be universally true that the more powerful a disinfectant, the more varied is its action on different bacteria, so that although extremely dilute solutions suffice for some, others will resist concentrations many times greater. Unfortunately the preservation of serum, unlike some other purposes for which a disinfectant may be used, demands that the reagent used shall be capable of destroying any microorganism whatever, and otherwise admirable disinfectants, active in dilutions so great as to constitute an ideal preservative, have been found to fail with some diphtheroid or mould which happens to possess what can only be looked upon as a freak degree of resistance to it. One way of overcoming such a drawback is to combine two disinfectants of different constitution, each of which, besides reinforcing the general action of the other, might be capable of filling occasional gaps in the capacity of the other, since peculiar insusceptibility to disinfectant action is often confined to a single class of disinfectant. A step has been taken in this direction by the work of C. R. Falk and S. P. Aplington (Amer. Jour. Hyg., 1936, xxiv., 285), who have studied the effect of mixtures in different proportions of phenol and merthiolate on three different bacteria at three different temperatures and over a considerable number of time periods. Their general conclusion appears to be that this combination is a good one. Merthiolate is an example of a disinfectant active against most bacteria in extremely high dilution, and having certain chinks in its armour which alone prevent it from being ideal. Unfortunately phenol, on the other hand, is even more poisonous, in proportion to its disinfectant power, than tricresol; but if the reduced proportion of phenol employed by Falk and Aplington could be altogether eliminated in favour of some less toxic substance equally capable of supplementing the action of merthiolate where necessary, these experiments might point the way to an important advance.

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[1] See THE LANCET, 1936, i., 282, 319.

ANÆMIA AND MYXŒDEMA

THE influence of thyroxine on erythropoiesis has hitherto been ill defined. In 1926 G. M. J. Mackenzie[1] drew attention to a group of cases with megalocytic hyperchromic anæmia which responded well to treatment with thyroid, though the original diagnosis had been that of pernicious anæmia. Since that date several authors have reported patients with myxœdema and megalocytic hyperchromic anæmia who have responded to treatment with both liver and thyroid but to neither remedy when given alone. The occurrence of a hypochromic type of anæmia in association with myxœdema has also been noted, but the available evidence has not made clear whether such an anæmia would respond to liver alone, thyroid alone, or to combined therapy. S. A. Holbøll has now studied 28 cases of myxœdema over a five-year period.[2] In 13 of these patients the hæmoglobin was below 70 per cent. One patient had typical pernicious anæmia, four had a colour-index above one, the others had a normal or subnormal index. Treatment with liver and stomach preparations was without effect; iron alone produced no appreciable change in the blood picture. Thyroidin in all cases exercised a favourable influence on the anæmia. In some instances, however, when the hæmoglobin reached a level of about 80 per cent. no further improvement occurred until iron was given, when a second rise in hæmoglobin took place. If iron and thyroidin were given together the most satisfactory results were obtained. In four cases after a normal blood picture had been reached Holbøll withdrew thyroid; in all there was some return of the anæmia. These observations suggest that the hypochromic anæmia found in certain patients with myxœdema is dependent in part upon the absence of thyroxine and is not due to an associated but independent iron deficiency. We do not yet know how thyroxine exerts its influence upon hæmopoiesis.

BOOMERANG LEG AND YAWS

THE council of the Royal Society of Tropical Medicine and Hygiene has wisely decided to publish from time to time monographs of outstanding interest to students of tropical medicine. It is happy in its choice of Dr. Hackett to inaugurate this new venture, and he is to be congratulated upon an excellent production,[3] the material for which was obtained in the Northern Territory of Australia during the winter of 1934, with assistance from the Sheridan research bequest of the University of Adelaide. The Southern area of the Northern Territory is described as acacia-covered semi-desert and shrub steppe, rising in places to 1000 feet above sea-level. The climate is hot and dry, and temperatures of over 100° F. are frequent in summer, whilst night temperatures below 32° F. are recorded in winter. The annual rainfall is under twelve inches. Hackett's investigations lead him to believe that syphilis does not occur amongst the natives of Central and Northern Australia, though gonorrhœa is common. At the present time the presence of yaws is well recognised, and some of its manifestations, such as gangosa, have been noted. It may be, too, that the disease known as *irkintja* amongst the aborigines is in reality yaws. Boomerang leg is an antero-posterior curvature of the leg below the knee with a forward convexity; occasionally the curve is interrupted by bosses of localised periosteal thickening, and they are often associated with cicatrices. The severity of bone pains experienced with these lesions sometimes renders walking impossible. Hackett finds that 84 per cent. of cases give positive Wassermann reactions, whereas a control series of natives without scars or boomerang legs gave negative results. This evidence, together with the fact that sabre tibiæ are seen in other parts of the world where yaws is in evidence, supports the conclusion that boomerang legs in Australia are identical with the osteitis of yaws as seen elsewhere. Particularly valuable are the radiographic studies in association with examination of the bones themselves, and the monograph is illustrated by many good radiograms as well as other photographs. The appearances depend upon the severity of the initial lesion and the time which has elapsed since the onset. Areas of rarefaction appear early and the bone becomes deformed. As the more acute stage resolves the rarefied areas clear up, leaving a depressed bone and a thickened cortex. Lines of arrested growth are often seen. Rare lesions found in bones are multiple necrotic foci, periosteal nodes, and generalised periosteal deposits.

PSYCHONEUROTIC WORKMEN

AN article by Dr. M. Rosenfield on industrial psychotherapy[1] draws attention to the lack of provision for the treatment of psychoneuroses in industrial health services. This might be linked up with a similar lament in our correspondence columns last week when Dr. J. P. Steel complained of the difficulty of finding suitable light employment for men recovering from physical injury. In industry it often happens that a man must be of full working capacity before he can be re-employed, and Dr. Rosenfield notes that one of the concerns of the industrial psychotherapist must be to keep the worker in useful employment. The psychotherapist should therefore be in close contact with industrial conditions, and it is for this close contact that Dr. Rosenfield makes his plea. Some consider it a dangerous policy, he says, to recognise the nervous worker as one deserving of help in the same way as an injured worker deserves it. This view—the existence of which is undeniable—helps to swell sickness returns with nervous troubles camouflaged under a diagnosis of physical disease, a phenomenon we are only now coming to recognise. The lack of treatment, or of understanding, of psychoneurotic disorders places a definite burden upon industry, and Dr. Rosenfield's recommendations can therefore be supported as advantageous not only to the sufferer but to the financial side of industry. Psychotherapy of the individual, however, is not sufficient. Many other problems intrude themselves—e.g., wages, accident prevention, rent and houses, travel to and from work, dietetic problems, &c.—and here psychotherapy comes in contact with the wider subject of the contentment of the worker. The psychoneurotic symptom and the psychoneurotic disability are not identical and a large number of nervous people can be, and are, efficient workers when the working environment places no undue stress upon them. Dr. Rosenfield has, without specifying the point, recognised that the reactions of the psychoneurotic worker act as an indicator of good or bad industrial conditions. There exist the beginnings of an organisation such as Dr. Rosenfield desires; welfare workers are now regularly employed in many industrial

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[1] Jour. Amer. Med. Assoc., 1926, lxxxvi., 832.

[2] Acta Med. Scand., 1936, lxxxix., 526.

[3] Boomerang Leg and Yaws in Australian Aborigines. By Cecil J. Hackett, M.D., M.R.C.P. Monograph 1. Roy. Soc. Trop. Med. and Hyg. (Manson House, 26, Portland-place, London, W.). 1936. Pp. 66. 5s

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[1] The Human Factor, October, 1936, p. 360.

establishments, and for these workers some amount of psychological training is often provided by their own associations. Diplomas requiring psychological knowledge are granted to would-be social workers, and medical officers attached to firms are becoming aware of the need for understanding the psychological factors that concern the health of the workers under their care.

A PHILOSOPHIC TRAVELLER[1]

THESE recollections of a philosophic traveller are well worth reading; they differ wholly from the notebook details of the usual globe-trotter both in what they include and in what they omit. In a life spent between his native Denmark and the Dutch East Indies, Dr. Wøller trotted much on his way to and fro, and whether passing on by land or sea, or sojourning briefly in port, mart, or capital, he always found time to think as well as see. As a young doctor he practised in Java and served in the Acheh campaign in Northern Sumatra. His description of the rounding up by the Dutch officials of a band of splendidly fighting rebels makes pure fine drama, and the sympathies of the reader will sway, as did those of the author, between the opposing parties, for if one party represented the march of civilisation, the other was struggling for ancient rights.

The book will break new ground for most of us because of its intimate descriptions of native life in a part of the globe so remote from most political and social reactions. But other chapters in the earlier part of the book will read as no less original. The cursive, incisive, and highly amusing remarks on places, all of which are familiar to the practised tourist and some of which most people have seen on holiday visits, convey new impressions. Here is a traveller who finds Venice and Nice, Paris and Cairo, to yield a feast for observation, curiosity, and surmise, although no guidebook is followed and no intention manifested to see the things one is expected to see. Dr. Wøller is obviously well and even deeply read in French and English as well as the Scandinavian tongues, and illustrates his unconventional philosophy with pertinent quotations throughout. Once again Mr. Claude Napier displays his graceful and learned skill in the translation of a Scandinavian language; he has clearly enjoyed the task.

COAL SMOKE ABATEMENT

THE eighth annual gathering of the National Smoke Abatement Society came to a successful conclusion last Saturday with a general meeting at which Dr. H. A. Des Voeux presiding was able to point to the important progression of the Society. The exhibition in connexion with the meeting which was opened on Oct. 1st by the Minister of Health was noted last week. This exhibition attracted great attention and the conferences held in association with it at the Science Museum, South Kensington, added to the public interest. Sir Francis Fremantle, who took the chair at the conference on Oct. 15th, said that personal delight in the open fire would continue to prevail, but that, while recognising the charm of the fireplace, a remedy must be found for the damage it might work under existing conditions. Dr. Margaret Fishenden held that for the prevention of coal smoke it was essential to use the right fuels, and that if fuels were properly classified and distributed accordingly a great gain would have been secured. At the afternoon session of that day Dr. J. S. Owens, superintendent of the department of scientific and industrial research, read a paper on the investigation of atmospheric pollution, in which he pointed to the serious defilement of the air at well-known seaside resorts, and at the same gathering Sir Arthur Hill, director of the Royal Botanical Gardens at Kew, told a sad story of the damage done by atmospheric pollution to vegetation, while he said that the soot deposits on glass at Kew were so thick and sticky that rain did not clean the roofs of the houses. On Friday, Oct. 16th, Sir George Newman presided at the final session of the conference and held the backwardness of the country in dealing with the smoke nuisance to be a scandal. Sir Leonard Hill, F.R.S., spoke on the obstruction of light as a serious obstacle for real health, the curative value of sunlight and fresh air being recognised now in a manner quite foreign to the early Victorian era. Sir Henry Gauvain, on the same theme, spoke of a light clean atmosphere and its influence on tuberculosis, and other speakers were Sir Pendrill Varrier-Jones, director of the Papworth Village Settlement, and Dr. D. B. Cruickshank, working at the Sims Woodhead Memorial Laboratory at Papworth. These, and many other valuable contributions of knowledge on the subject, will be published in the quarterly journal of the Society, and full particulars of the Society can be obtained from the general secretary, 36, King-street, Manchester, 2.

At the close of the meeting a mantelpiece clock was presented to Dr. Des Voeux and a fitted dressing-case to Mrs. Des Voeux, the occasion being a dinner at the Rembrandt Hotel, South Kensington.

ACETYLCHOLINE AND VOLUNTARY MUSCLE

THE division of the various neurones of the autonomic system into adrenergic and cholinergic, according to the method by which they transmit excitation, is now familiar, and there is little difficulty in demonstrating that the corresponding substances adrenaline and acetylcholine act on tissues such as smooth muscle and glands in a way that agrees with their innervation. Although acetylcholine had been detected in the perfusion fluid from voluntary muscle under nervous stimulation, and although Prostigmin, which has such a dramatic effect in myasthenia gravis, was known to preserve acetylcholine from destruction in the tissues, there was until recently the utmost difficulty in definitely linking acetylcholine with the contraction of voluntary muscle. Applied to normal muscle it had no effect. Applied to muscle whose motor innervation had degenerated it produced a slow contracture which bore no apparent relation to normal muscular contraction, and which, if anything, seemed to discount the possibility of the substance playing a part under normal conditions. During the present year, Dr. Brown, Sir Henry Dale, and Dr. Feldberg[1] have been able to show that the failure of previous experiments was due to an insufficiently intimate contact of acetylcholine with the muscle-fibres. By isolating the artery to the gastrocnemius in the cat from all anastomotic connexions, they were able to inject into it, with some force, a solution of acetylcholine which they knew would almost instantaneously penetrate every portion of the muscle. In these circumstances a twitchlike response of the muscle occurred which, though not so rapid as a twitch following nerve stimulation, resembled it sufficiently closely to show that it was a variety of the same phenomenon. They were also able to demonstrate a potentiating action of eserine, which inhibits the enzyme responsible for destroying acetylcholine, on the response of the muscle both to acetylcholine and nerve stimulation, but not to any other form of stimulation. The inference is plainly that the nerve impulse transmits its excitation to the muscle-fibres by liberating at the motor end-plate a small charge of acetylcholine. This rationalises the action of prostigmin in myasthenia gravis, suggesting that the disease is actually due to some failure in the transmitting function of acetylcholine.

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[1] Zest for Life. By Johan Weller. Translated from the Danish by Claude Napier. London: Lovat Dickson Ltd. 1936. Pp. 257. 8s. 6d.

[1] Brown, G. L., Dale, H. H., and Feldberg, W.: Jour. of Physiol., 1936, lxxxvii., 394.

COPPER IN CULTURE MEDIA

EXPERIMENT is indeed a hazardous business and the experimenter's path seems to be surrounded by impish circumstances. Bacteriologists noticed a long time ago that they often failed to get a satisfactory subculture if they implanted only a few organisms, and a number of workers looked into the matter, suggested various explanations, and found several methods by which the difficulty might be evaded. Drs. R. A. Q. O'Meara and J. C. Macsween have lately found[1] that most at any rate of the trouble with such an organism as the staphylococcus is due to the presence of copper which is brought into the culture medium either in the peptone or from using copper utensils in brewing it. Hence they say the known superiority of broths in which the peptone is cooked up with the meat (which absorbs the copper) instead of being added to the filtered meat extract. Others have we believe noticed the poisonousness of copper funnels for filtering hot media, but not unnaturally no one seems to have suspected that commercial peptone could contain enough of the metal to make a difference. Some peptones also have a good deal of iron, but this the bacteria seem to meet with equanimity. Is it possible that the superior keeping qualities of old-fashioned jam were due to the copper which was dissolved in considerable quantities from those magnificent stewpans which adorned the kitchen mantelpiece? Perhaps, too, such jam might prove an elegant vehicle for those who want to give copper to anæmic children?

VIRUS OF LYMPHOGRANULOMA INGUINALE

THE discovery by Hellerström and Wassen in 1930 that lymphogranuloma inguinale is due to a filtrable virus has been followed by a large output of papers on the continent of Europe, in America, and in this country. As a result it has been demonstrated that the disease long known in the tropics as climatic bubo is identical with the lymphogranuloma inguinale of more temperate climes, while the main features of the infection have been clearly defined. The world-wide distribution of the disease is further emphasised by the series of eight reports recently published by Prof. Y. Miyagawa and his colleagues[2] of the Government Institute for Infectious Diseases in Tokyo. So far as the pathological changes and the list of susceptible animals are concerned the results of the Japanese workers are mainly confirmatory of those obtained elsewhere. They found, however, that in addition to monkeys, mice, and guinea-pigs an Asiatic squirrel, *Entamias asiaticus orientalis*, was highly susceptible to the virus by intracerebral, intratesticular, and intradermal inoculation. The possible ætiological significance of small granular corpuscles, readily stained by Giemsa's method, was especially emphasised, while the size of the virus was estimated by differential filtration to be between 0·125µ and 0·175µ, a result also obtained by Broom and Findlay.[3] While the virus was successfully cultivated on the chorio-allantoic membrane of the chick embryo, and in actual tissue cultures of testicle, brain, and spleen of normal adult mice, difficulties were encountered in growing the virus by the Maitland technique. Actively growing cells appeared to be essential for the propagation of the virus. These growing cells also contained minute granules. Though absolutely conclusive experiments are lacking there is thus a strong probability that these granules represent the actual virus particles.

LOOKING AND SEEING

NATURE seldom makes the perfect experiment, and when she does the probability is that it is not recognised. When Dr. Gordon Holmes entitled his John Mallet Purser lecture[4] "Looking and Seeing," it is unlikely that he meant to infer anything of this kind, but the aptness of the title as a comment on, as well as a description of, the subject matter of the lecture must have struck his hearers forcibly. His account of a reflex determining fixation of the eyes was illustrated by two cases between which few observers would have detected any relationship. The first was that of a man who had lost all voluntary control of his eyes, although these, in common with other paralysed parts of the body, moved in response to reflex stimulation. Detailed investigation revealed an exception to this rule: if the eyes were fixed on an object, the strongest reflex stimuli failed to cause any deviation, and if the head was slowly moved the eyes did not move with it, but remained directed to the same spot. Various experiments showed that this fixation was not voluntary, but itself a reflex, exaggerated because of lack of restraint from higher centres. It was readily and easily abolished by interrupting the line of vision temporarily with a screen. The second case, or rather type of case, was the converse of this. Voluntary movement was unimpaired, and the eyes could be turned towards a given object, but fixation was deficient and the eyes immediately wandered back to their position of rest.

There are several factors which might be concerned in directing the eyes to a certain point, and even maintaining them in position, but there seems no doubt that a definite "fixation reflex" originates in the retina and that part of its arc lies in the visual cortex. Holmes points out that without such a reflex it would be next to impossible to keep looking at one object. Even if it were quite stationary, the observer would constantly be making movements of the body, and slight postural adjustments of the head, each of which would require a fresh voluntary effort directed to compensatory contractions of the eye muscles. If the reflex is impaired it cannot be successfully replaced by willed movements, whereas if it is exaggerated it resists interruption by other reflexes and can only be terminated by removing the stimulus. In normal circumstances, then, the activity of the extrinsic ocular muscles is determined by balanced reflexes, the fixation reflex tending to inhibit movement, except in so far as this keeps the field of vision unaltered, and other reflexes, chiefly initiated by sudden visual, auditory, or labyrinthine stimuli, tending to produce sudden movement. Such a balance of forces fits in well with modern physiological conceptions, and if correctly adjusted would ensure that the attention was neither too fixed nor too easily distracted. Capable of superseding both sets of reflexes are the important "volitional" impulses from the frontal cortex, whereby the eyes are moved about deliberately. The anatomical implications of this theory agree well with what is known of the tracts subserving vision and ocular movement. A short time ago we commented on a paper by Sir Arthur Hall[5] on opening and closing of the eyes, in the course of which he writes: "Whilst closure of the eyes may serve various purposes, it is certain that one of these is to exclude light, and that until light is thus excluded the nervous mechanism which controls eye closure is not satisfied." Holmes's lecture lends point to this, for it adds to the importance of closure of the eyes during sleep. It may also explain, though here we become rather speculative, how somnambulists are able to perform complicated but purposive acts while apparently unconscious, reflex fixation, in the absence of distracting stimuli, not needing to be reinforced by conscious attention.

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[1] Jour. Path. and Bact., 1936, xliii., 373.

[2] Miyagawa, Y., Mitamura, T., Yaoi, H., Isû, N., Nakajuna, H., Okanishi, J., Watanabe, S., and Sato, K.: Japan. Jour. Exp. Med., 1935, xiii., 1, 331, 723, 733, and 739; 1936, xiv., 197, 207, and 221.

[3] Broom, J. C., and Findlay, G. M.: Brit. Jour. Exp. Path., 1936, xvii., 135.

[4] Irish Jour. Med. Sci., September, 1936, p. 565.

MEDICAL RESEARCH COUNCIL: NEW APPOINTMENTS

BY an order of the committee of the Privy Council for medical research, Lord Balfour of Burleigh and Prof. John Mellanby, M.D., F.R.S., Waynflete professor of physiology in the University of Oxford, are appointed members of the Medical Research Council in succession to the Marquess of Linlithgow and Prof. E. D. Adrian, M.D., F.R.S., who retired in rotation on Sept. 30th, 1936. The appointment of Prof. Mellanby was made after consultation with the Medical Research Council and with the president of the Royal Society. Lord Balfour of Burleigh has now been appointed by the Medical Research Council to be their chairman, also in succession to Lord Linlithgow, and this has been approved by the committee of the Privy Council.

FOREIGN BODIES IN ŒSOPHAGUS AND BRONCHI

Prof. A. Caiado de Castro gives an epitomised account in a supplement to a bulletin (No. 3) issued by the Secretary-General of Public Health of Brazil of 300 cases of foreign body removed by endoscopic methods from the bronchi and œsophagus, which is preceded by a brief description in Portuguese, French, English, and German of the technique employed. The use of anæsthetics for this work has been completely abandoned at the Oto-Laryngo-Ophthalmological Clinic of the Municipal Department of Rio de Janeiro since January, 1932, except that on a very few occasions local anæsthesia has been employed for foreign bodies buried in areas where the œdema and spasm were severe. Great importance is placed on the position of the patient. He is wrapped in a sheet with the feet together and the hands on the thighs, and is fixed to the table by means of three straps, respectively at the level of the sixth dorsal and fifth lumbar vertebræ, and at the lower third of the thighs. He is placed in the dorsal position, with the head and shoulders beyond the end of the table supported by an assistant sitting on a stool to the right of the patient. A second assistant controls the Doyen gag, and a third works the aspirator and times the procedure; considerable importance is attached to the speed of operating. Brünings tubes are preferred, with Chevalier Jackson's forceps. It is obvious that a very large number of cases of foreign body come to this clinic, and that Prof. Caiado de Castro and his colleagues have acquired great skill in their extraction. In the large majority of cases the foreign body was lodged in the œsophagus. This monograph in Portuguese is sumptuously produced, with photographs of every foreign body, of the disposition of patient and assistants, of the instruments employed, and of the municipal hospital. It could be wished, however, that, in addition to the short history of each patient, an account of any unusual or complicated case had been given, with a general summary of the results, for it is only by reading through every epitome that such information can be obtained.

MEMORIAL TO DR. M. D. EDER

THE desire has been expressed in many quarters to establish a memorial to the late Dr. David Eder to commemorate his services to medicine, to social science, and to Zionism. It is felt that not only psycho-analysts and Zionists would like to be associated with this memorial, but also many working in the spheres of medicine and social science who knew of Dr. Eder and of his work. A letter commending the proposal reaches us over the signatures of Albert Einstein, Sigmund Freud, Sir Philip Hartog, Ernest Jones, J. L. Magnus, Lord Melchett, Redcliffe N. Salaman, Arnold Sorsby, Chaim Weizmann, and H. G. Wells. After recalling Dr. Eder's great services to the Hebrew University of Jerusalem and to the Zionist movement they continue, "His work in the sphere of psycho-analysis is well known to members of the International Psycho-Analytical Association, and his place in the history of psycho-analysis was appraised in the *International Journal of Psycho-Analysis* in the April issue for 1936. The many tributes to his memory which have appeared in the press both of this and of foreign countries during the past few months bear witness to the loss which the causes of social effort and scientific inquiry have suffered by his passing. We who were privileged to know and collaborate with him, mourn the loss of an untiring worker and a courageous pioneer, one whose ever-helpful personality will always live in our memory. We are sure that many will wish to perpetuate his memory by assisting to further an object he would have had so much at heart." The object here mentioned is the establishment of a psychological library, bearing Dr. Eder's name, at the Hebrew University, and Mrs. Eder has agreed to present his own library as a nucleus. Subscriptions may be sent to the hon. secretary and treasurer, Mr. Maurice Sorsby, F.R.C.S., 86, Harley-street, London, W.1.

ON Tuesday, Nov. 3rd, Dr. Edward Mapother will deliver the Bradshaw lecture of the Royal College of Physicians of London, his subject being the integration of neurology and psychiatry. On Nov. 5th and Nov. 10th Dr. J. D. Rolleston will give the FitzPatrick lectures, speaking on the history of the acute exanthemata. The Mitchell lecture will take place on Nov. 12th, when Dr. R. R. Trail will speak on recent aids to the prognosis of pulmonary tuberculosis. All the lectures will be given at 5 P.M. at the College, and members of the medical profession will be admitted on presentation of their cards.

ROYAL CANCER HOSPITAL (FREE), LONDON.—An appeal for £150,000 is being made by this hospital in order to modernise the wards, extend the research institute, and enlarge the nurses' home.

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[5] See THE LANCET, August 1st, 1936, p. 269.

PROGNOSIS

A Series of Signed Articles contributed by invitation

CXVIII.—PROGNOSIS IN THE MANIC-DEPRESSIVE PSYCHOSIS

CLEAR-CUT issues are so rare in psychiatry that a definite diagnosis, carrying with it a definite prognosis, is almost too good to be true. It is, however, certain that the term manic-depressive psychosis is often used in this decisive way: when a patient has been so diagnosed, it is taken for granted that he will recover completely, though he remains liable to further attacks of affective disorder; the only points that are doubtful are the duration of the present attack and the date of any subsequent ones. Such a view of the matter assumes that the diagnosis can be made with confidence, and that the cases have always a benign but repetitive course. This is unfortunately wrong. It is impossible to distinguish sharply between manic-depressive psychoses and other forms of disorder, some recurrent, some chronic, in which an excessive emotional change is the most striking aspect of the illness. It would be more correct to say that in the wide range of affective psychoses, both major and minor, there is at one extreme a group in which constitutional factors are vastly more potent than external circumstances, and in which, if the patient does not die from hunger, suicide, violence, or intercurrent disease, he recovers completely, though not without risk of recurrence; while at the other extreme there is a group of relatively mild disorders, mostly with depression or anxiety, on the course of which their environment exerts great influence, the drift being towards chronicity. Between these extremes lie many, perhaps the majority, of cases of affective psychosis. To attempt an exclusive twofold classification into manic-depressive or endogenous cases, and neurotic or reactive ones, is to insist on the extremes, as though one were to classify all mankind into the fat and the thin. There are a great number of cases of affective disorder, in which it is impossible to tell from their clinical form alone what will be their outcome; that can only be done by a study of their previous history and personality, and an estimate of the treatment and other circumstances to which they will be exposed. Moreover, what seems a typical affective psychosis may be found to be symptomatic of some disease such as cerebral arteriosclerosis, G.P.I., myxœdema, cerebral tumour, pernicious anæmia, or other "organic" condition. This may be true, although there be no signs of dementia or confusion, but only mania or melancholia. The prognosis in such a case will be that of the disease, and not of the usually benign psychiatric syndrome which happens to fill the clinical picture.

Since therefore the weighty question, "Will the patient recover from this illness?", is answered by psychiatric diagnosis alone less fully than is sometimes supposed, it is all the more necessary to have general rules of prognosis to take the place of a diagnostic short cut to that end. If this affective syndrome be regarded not as a disease, running a definite course, but as a type of reaction, in which a pathological emotional disturbance is the chief feature, it follows that the prognosis must depend on (1) the inherited predisposition, and evidences of it in constitution and personality; (2) the experiences which have moulded the patient and to which he is still exposed and responsive; and (3) the tendency of an emotional reaction to subside or to drag on. More briefly, the prognosis depends on heredity, on environment, and on biological form. So, in the main, does choice of treatment.

Heredity

Besides the prognosis for the patient, there is the prognosis for the next generation—the question whether the children of an affected individual will be likewise affected. This genetic prognosis can go no farther than to say that the probability of transmission is highest where both parents have had well-defined attacks of mania or acute depression, or where in the one unaffected parent there is a notably sanguine, melancholic, or cyclothymic temperament. Where one parent is healthy, and the other has had periodic attacks of depression or mania, there is a likelihood that a third of the children may show the disorder.

As for prognosis in the ordinary sense, the chances of complete recovery from an attack will be good where a typical affective illness, periodic or solitary, has occurred in one or more of the patient's antecedents. It may also be cautiously assumed that eccentric, neurotic, or schizophrenic antecedents, especially parents, make the outlook for complete recovery rather less satisfactory. The hereditary endowment of the patient may often be inferred from his temperament and even from his bodily habit. If the former is of the syntonic type, with its prompt affective responses, and the latter shows "pyknic" features—short-necked, thickset, paunchy, plethoric, broadfaced—then the chances of the attack being uncomplicated and followed by a return to health are much higher than if there have been indications of a schizophrenic or other psychopathic tendency. Moreover, the patient who has for years before his illness shown morbid traits, who has been anxious, or quarrelsome, or suspicious, or odd, or solitary, or obsessional, or in some other way has shown that he is constantly at odds with himself, as well as with his surroundings—such a patient is not going to be cured of his maladjustment by having an affective flare-up. A sortie does not end a siege. Should he recover from the acute illness, he will still be likely to show the features of personality that have troubled him hitherto. "Recovery" from the attack must therefore be a qualified notion, meaning recovery to the status quo ante rather than to some ideal state of mental health.

Environment

To trace the interplay between the patient and the experiences that have come his way is an intricate, sometimes an impossible, task; but some notion of how he has developed and how he has responded to his environment may be of considerable value in understanding the illness and forecasting its course. One may see what kinds of traumata have upset him, how quickly he has recovered from them, what effects they have had on subsequent behaviour and outlook. Previous happenings may be significant in making it clear why some recent occurrences should have provoked the present outbreak. But such investigations have their limits: it is not possible or desirable to make the fullest analysis of every patient's history. For a working prognosis, it is often sufficient if one gets a general grasp of the patient's response to his environment, and of the events which led up to his present illness. If his emotional state has for years been at the mercy of his surroundings, and neurotic instability has been his chief way of dealing with his troubles, the outlook is less promising than it would otherwise be. It is more contingent on his receiving the sustained guidance and support of psychotherapy; and his recovery will be especially difficult or incomplete if through financial, physical, or other handicaps life continues to bear hard upon him.

The harmful stresses that must be relieved to promote mental health, have to be worked out separately for each patient and given due weight in assessing his prognosis. There are on the whole few affective illnesses so endogenous that no reactive elements can be found in their immediate causation or in their duration and content, just as, on the other hand, there are few affective illnesses—whether called neuroses or not—in which one can help inferring a constitutional factor. The task in prognosis, here closely linked to ætiology, is to assess the weight and interplay of these forces, on the basis of psychological understanding and clinical experience—neither of which can be written down. It is false for prognostic or other purposes to make an antithesis between endogenous illnesses which are assumed to be self-limited, and reactive ones which respond to psychotherapy.

Clinical Form

It may be said, simply, that severe emotional upsets ordinarily tend to subside, but that mild emotional states, when often provoked or long maintained, tend to persist, as it were, autonomously. Hence the paradox that a gross blatant psychosis may do less damage in the long run than some meagre neurotic incubus: a dramatic attack of mania or melancholia, with delusions, wasting, hallucinations, wild excitement and other alarms, may have far less effect on the course of a man's life than some deceptively mild affective illness which goes on so long that it becomes inveterate. The former comes as a catastrophe, and when it has passed the patient takes up his life again, active, cheerful, normal in every way, while with the latter he may never get rid of his burden.

There are a number of statistical reports on prognosis, based on the distinction between recurrent "typical" episodes of depression or elation and long-standing variants and exaggerations of neurotic personality. The main points that emerge from these are as follows: a first attack of mania will very seldom be the only one, whereas the first attack of melancholia may be the only one. There may be a single attack at puberty or at the climacteric. Melancholia is much more likely to become chronic than mania. Periodic attacks of mania may cease in middle life; periodic depression is less likely to. The presence of features characteristic of schizophrenia, hysterical or other modes of reaction make the prognosis more dubious. Hallucinations and delusions are in themselves of little prognostic importance: they are more frequent in cases that turn out badly, but it is their form and development that is significant, not their mere occurrence. A transition from mania to melancholia, or the reverse, is commonly gradual, as is recovery from either. Only previous history will enable one to foretell the duration of the attack and whether it will be of the alternating kind, or the only one. Subsequent attacks will probably be of the same type as their predecessors. After recovery complete insight may not be attained, especially in resentful manic patients and melancholics who are sensitive and suspicious.

These statistical observations have largely been made on cases admitted to mental hospitals. If one enlarges the scope of the inquiry to include those seen in a psychiatric clinic, and to ascertain more about them after recovery than merely their capacity to earn their living and rub along in the ordinary way, it becomes evident that the outcome is by no means uniformly good. Crude "pure" mania or melancholia, coming on abruptly in a healthy person, is, it is true, likely to clear up, leaving not a trace behind, but there are many patients who after the illness remain, or revert to being, excitable, gloomy, tired, or anxious; careful study of the past history will in such cases be more profitable for prognosis than examination of the present symptoms. So long as the illness is in time of occurrence and content closely related to an adequate and transient precipitating factor, recovery should usually be prompt. The longer the disturbing factor continues to act, and the more the patient has shown a tendency to mild but very persistent affective reactions, in which anxiety, fatigue, and hypochondria have been in the forefront, the poorer is the outlook for complete recovery. For such patients, psychotherapy and adjustment of their environment to suit them will be much more necessary and efficacious than for those with catastrophic reactions, where periodicity is more conspicuous and reactivity less so, and the normal or interval personality is well adjusted and tolerably stable. Prognosis, therefore, will be influenced by the choice and possibility of appropriate treatment.

The most satisfactory outcome is to be looked for where the onset is abrupt, the clinical features those of uncomplicated "classical" mania or melancholia, the previous personality healthy and syntonic, any previous attacks well-defined affective ones, and no physical disease, especially of the circulatory system, to be discovered. Gross hypochondriac ideas, nihilistic delusions, much admixture of schizophrenic or other anomalous symptom, and true stupor are unfavourable points; severe depersonalisation often means a long illness. As people grow older, the intervals between the attacks may grow shorter and the attacks themselves longer. Sometimes after a series of attacks the patient becomes dulled, shows impaired initiative and judgment, and is less able than formerly to deal with his daily problems, though in other respects or superficially he would be regarded as healthy.

Death

Death during an attack is not so rare as is thought. In the Massachusetts mental hospitals, where statistics are well kept and diagnosis is fairly uniform, the death-rate per 1000 of manic-depressive first admissions is 36, and for readmissions 48. These deaths are not restricted to patients in middle life or old age, though of course the majority occur over the age of 50 and are due to circulatory disease. Essen-Möller found that after discharge from hospital manic-depressive patients had a mortality-rate one and a half times that of the average population. Deaths by suicide, which scarcely enter into mental hospital statistics, account for an unknown, but certainly large, number of deaths from manic-depressive psychosis, often at a stage where the gravity of the condition is missed and "a change of scene" or "a course of special treatment" has

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POST-GRADUATE LECTURES

SHORT courses for former students are still in progress at some of the London teaching schools. Below we publish abstracts of lectures given by Dr. Wall at the London Hospital, Dr. Hunt at St. Mary's, and Dr. Wigley at Charing Cross.

THE CARE OF ARRESTED PULMONARY TUBERCULOSIS

(DR. CECIL WALL)

THE treatment of active pulmonary tuberculosis has in recent years passed out of the control of the general practitioner, but the after-care remains within his special province.

Prognosis.—The Frimley Sanatorium was opened in 1905 and of the 97 patients treated there in that year 10 are still alive. Eight are still working, and of these 8, 6 had tubercle bacilli in the sputum 30 years ago. I do not know the ages of these patients but assume that when admitted they were at least between 20 and 30 and now are between 50 and 60. At the best we cannot assume that more than 10 per cent. have reached the age of 60.

In the last volume of the Brompton Hospital reports there appeared a careful analysis of the after-histories of 8766 patients treated at Frimley since 1905. Dr. Wingfield and his colleagues have attempted to assess the expectation of survival for another five years of the patients in different age-groups for each year after their discharge. It was shown statistically that the highest mortality occurs within the first two years following discharge, and that the expectation of survival improves year by year subsequently until the survivors reach the age of 48 to 52. That is to say, that while about half of those aged between 36 and 40 who have survived one year after discharge are likely to live another 5 years; of those who have survived 10 years, nine out of ten have an expectation of another 5 years of life; but at the end of 15 years only eight out of the ten then surviving have as good a future prospect. This conclusion seems to bear out the opinion gained from clinical experience that the ultimate prognosis of arrested pulmonary tuberculosis may be summed up in the phrase "premature senility." Another conclusion reached by the authors is that the mortality-rate varies directly with the anatomical extent and pathological stage of the disease when first brought under treatment rather than with the age or sex of the patient. This conclusion is justified by the records of the patients during the first 3 or 4 years after discharge, but it is noteworthy that after this period the expectation of survival of patients who had extensive disease improves in subsequent years with greater rapidity than that of those whose lungs were involved to a less extent.

Much light is thrown upon the prognosis in pulmonary tuberculosis by statistical investigation, but the method cannot be employed to elucidate the conditions which tend to hasten or retard a fatal ending. Some information of value in this connexion may be obtained by investigating the circumstances in which fortunate survivors have achieved prolonged existence. Such investigation may reveal certain common factors which may coincide with those usually accepted as favourable, or it may show that certain conditions often regarded as indispensable for recovery are frequently not present.

To-day I propose to tell you the conclusions which have forced themselves upon me after 30 years' clinical work at a chest hospital.

The Frimley report draws attention to the fact that pulmonary tuberculosis may progress for a long period without producing any symptoms of ill-health, so that the disease is already of considerable extent when the patient seeks medical aid. It is suggested that what is true of the initial attack is also true of recrudescence after arrest. I think that anyone with any experience of pulmonary tuberculosis will be inclined to agree with both these statements and realise the importance of trivial symptoms which the majority of patients would ignore.

The symptoms of pulmonary tuberculosis fall into two groups, those such as cough, expectoration, and dyspnœa which are due to the local disease, and those which may be included under the term constitutional disturbance presumably resulting from the absorption of tuberculotoxins into the circulation. Symptoms belonging to the latter group are often slight and evanescent, and consequently are dismissed as unimportant by the patient. They are likely to occur as the result of some physical overstrain and to disappear rapidly on resting. It is this fact which seems to be the basis of the spes phthisica.

In the *management* of a case of arrested tuberculosis it is of the greatest importance to study the minor manifestations of constitutional disturbance. Pyrexia, loss of weight, general aches and pains, night sweats, and the like are likely to attract attention, but these should count as major symptoms and a warning should be given before they develop. In this connexion I would remind you that apyrexial fever is a common phenomenon in arrested pulmonary tuberculosis; the normal temperature of many of these patients is below 98·4°, and a rise to that level may indicate fever. The minor symptoms are numerous and tend to vary with the temperament of the individual; one of the commonest is the sense of fatigue generally associated with fidgeting; others are dyspepsia, anorexia, headache, insomnia, palpitation, and irritability. The only safe rule for the patient whose tuberculosis has been arrested is to assume that if in any way he does not feel quite up to the mark he has overtaxed his strength and requires an overdose of rest. Of course, just as in initial attacks, arrested disease may at times take on fresh activity in the complete absence of symptoms: to guard against such a mishap periodic physical examination aided by radiography is desirable.

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been advised, more riskily than the adviser knew. If all the cases of death by suicide during a phase of morbid depression and all the deaths from infectious disease (including pneumonia) of manic or depressed patients could be ascertained, it would surely be oftener remembered that this can be a lethal illness and that suitable hospital treatment may be called for, though there be no gross psychotic features, no history of previous attacks, and no lack of insight or of psychological causes for the breakdown.

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It may be objected that this advice encourages valetudinarianism, but a measure of valetudinarianism is the price the patient has to pay for prolonged existence. Speaking generally, if a threat of recrudescence is recognised early the patient's resistance will be restored after a short course of treatment. Any increase of the focal group of symptoms will naturally call for particular care, but hæmoptysis requires special consideration. Repeated small hæmorrhages, especially if associated with any constitutional disturbance, must give rise to anxiety; but in old fibrous arrested disease a sudden free hæmoptysis, particularly if the patient at the time feels fit, may be the result of the rupture of a small aneurysm of the pulmonary artery and may not lead to any extension of the disease. A short period of rest and close observation to exclude evidence of constitutional disturbance may be all the treatment required.

Difficult problems often arise with regard to the place of residence and the occupation of an individual in whom pulmonary tuberculosis has been arrested. In every case except when the area of lung involved was very small there will be some impairment of physical strength and vitality; change of occupation, even if desirable, is seldom possible, but if there is a change it should be in the direction of lighter rather than of heavier work. This consideration brings us at once into conflict with those that hold that tuberculous convalescents should seek an outdoor employment. I do not consider it good advice to suggest that a city clerk should become a farm labourer or a bus conductor merely because he would be kept thus in the open air. There are very few outdoor occupations which do not require muscular exertion in excess of the capacity of the majority of those whose lungs have been damaged.

Unless the patient can afford to retire it is probable that he will have to return to his former occupation. There is a popular belief that anyone who has had a tuberculous lesion must henceforth live in the country. Fresh clean air is of course desirable for everybody, but if country residence involves a long journey to and from work the disadvantages may soon outweigh the advantages. I have known many patients who have kept well when living and working in London, and I do not believe it necessary or even advisable to urge them to live far from their work. The limitation of physical exertion is of much greater importance than climatic treatment. A hot climate is usually held to be unsuitable, but I have known several patients who have kept well in the tropics where labour is cheap and physical exertion can be reduced to a minimum.

Questions with regard to the diet of patients will almost certainly be put. I am convinced that the best answer is an ordinary mixed diet such as is found suitable for the healthy; the meals should be regular and well spaced with intervals of at least three hours to permit full digestion. Frequent feeding is likely to lead to dyspepsia. Extra milk is not desirable; milk is a good food but is bulky and often causes discomfort. It may be necessary when there is dyspepsia due to tuberculotoxæmia, but in cases of arrested disease more concentrated foodstuffs are better. Alcohol in moderation may be permitted as a luxury, but not as a medicine; used to mask a sense of fatigue it is likely to be harmful. In my experience habitual alcoholism is more frequently the result of chronic tuberculosis than tuberculosis of alcoholism. Smoking in moderation appears to be harmless provided that it does not aggravate the cough.

FIBROSITIS

(DR. THOMAS HUNT)

"FIBROSITIS" is a diagnosis applied to so many muscular aches and pains that it will be well to begin by giving it some sort of definition. It is a condition of diffuse or localised exudations in the fasciæ and interstitial tissues of muscles and ligaments leading to the presence of tender "nodules" in the affected parts: the ligaments around joints especially suffer and this is the reason why treatment in osteo-arthritis, for example, may do much good symptomatically though the joint itself remains unchanged; for probably half the symptoms of osteo-arthritis are due to the associated fibrositis. Fibrositis causes aching pain, often very severe; this is mainly present when the muscles are stretched or used, and complete *rest* will usually relieve it considerably if not completely. In this respect the pain differs from that of neuritis or perineuritis (e.g., sciatica) in which it is spontaneous and often not improved by rest. Similarly warmth will nearly always help fibrositic pain whereas it may make the pain of neuritis worse, especially when applied in the form of electrical heat such as diathermy.

The nodules of fibrositis are best felt when the muscles are on the stretch; firm and deep palpation may be required to detect them for they are often quite tiny. A tender lump felt in the neighbourhood of a *slack* muscle is likely to be outside the muscle (e.g., thrombophlebitis).

The factors mainly concerned in the causation of fibrositis are chill, trauma, fatigue, and infection. Generalised fibrositis is nearly always associated with some focus of infection; localised types such as lumbago and intercostal fibrositis are more often due to strain and chill. *Chill* does its worst upon stationary muscles which are on the stretch, and when it operates for a long time upon muscles that are fatigued. The tired man asleep in a draught of cool air offers an ideal chance. Hence fibrositis is frequently seen in active energetic young men and is in no sense a condition only of old people. It follows that attention to little details of daily life will often do more than anything else to prevent attacks; a chronic fibrositic back may be the result of a bad position when driving a car, or of an occupation that means constant bending—as in some of us leaning over bedsides! Recurring stiff necks are often due to faulty position asleep in bed; other cases are associated with a bad habit of doing violent physical exercises at the end of a day when muscles are already tired. In generalised fibrositis some toxic factor can nearly always be found; among my own patients one-third of the cases directly followed tonsillar infection while next in frequency came sepsis in or around the teeth. *B. coli* infection in the genito-urinary tract is often found, but I have only had two patients that did really well when the urine became sterile. Gonococcal infection must be remembered, but in my experience appendix, gall-bladder, colon, and cervix infection are less common causes.

Muscular pains similar to those of general fibrositis may accompany arterio-sclerosis or obesity, especially when fat is put on rapidly; they may thus often be found at about the menopause in women. Disuse of muscles lessens blood flow through them and increase in fat probably causes pains of vascular origin associated with the accumulation in the muscles of metabolic end-products which are no longer normally removed by the inadequate blood-supply. Here the remedy lies in reduction in weight and increased use of the muscles by exercises and the aid of massage; in some cases thyroid extract is helpful.

Of the local types of fibrositis "lumbago" is most often seen; this may be true lumbago which follows stretching or actual rupture of fibres of the erector spinæ, or a low backache due to fibrositis around the sacro-iliac joints. In both conditions pain is apt to run down the outer side and front of the leg, in contrast to sciatic pain which always goes down the back of the leg. In lumbago the ilio-tibial band and fascia lata of the leg are often involved, and in raising the extended leg to elicit Laségue's sign for sciatica the stretching of these ligaments may give rise to pain that is wrongly attributed to the sciatic nerve.

Chronic backache is rarely due to constipation and chronic nephritis is also an uncommon cause. A renal calculus is, however, always to be thought of, especially when the chronic aching is associated with attacks of more severe pain like true colic. In both lumbago and renal calculus jolting (as in a car) may increase the pain, but as a rule bending and movement of the back muscles produces more pain in patients with lumbago than in patients with calculus. Oxaluria is a condition which may sometimes be mistaken for fibrositis of the back, and repeated examinations of the urine for red blood-cells and oxalate crystals may be necessary to exclude this cause. I can remember three cases, regarded as fibrositic, which were completely relieved by diet for oxaluria—in which one must not forget to exclude coffee, chocolate, cocoa, strong tea, and grape fruit, as well as the more often remembered foods such as strawberries and rhubarb.

Intercostal fibrositis, or pleurodynia, may be mistaken for pleurisy, or (on the left side) coronary artery thrombosis. The pain usually follows a chill; it is very violent, of sudden onset, and worse with every movement and with coughing, breathing, or sneezing. The chest wall is often very tender on palpation, and is moved as little as possible so that on auscultation the air entry on the affected side may be poor. The most helpful points in diagnosis are the absence of cough, a rub, fever, or any change in blood pressure, together with the great pain on pressure and movement, and a history frequently of direct chilling of the side.

The essential treatment of fibrositis is local, together with the prevention of strain, fatigue, and chill and removal of foci of infection when these can be found. *Massage* is the most important remedy, and a fibrositis that shows no improvement with correct massage has probably some complicating factor such as scoliosis, osteo-arthritis, or persistent infection. Physical treatment may also fail because it is not given persistently enough or firmly enough: each application should always be followed by rest and warmth, and it is best given if possible in the patient's home. Massage for fibrositis should become progressively stronger and deeper, and is rightly painful at the time; on the continent it is said that there is "no cure without bleeding"—meaning that the treatment should be energetic enough to cause actual hæmorrhage around the nodules. Heat can often be applied as successfully by simple methods (linseed poultice or a hot iron over brown paper) as by elaborate electrical apparatus. If in doubt whether an acute neuritis is present, it is wise to withhold all forms of electrical heat such as diathermy.

Some of the greatest successes of spa therapy are found in cases of fibrositis, and correctly given baths are often very beneficial. Unless there is an indication for weight reduction, or treatment of oxaluria or gout, special rules of diet are not necessary except to insist upon avoidance of overeating and of alcohol, which usually increases fibrositic symptoms. No drugs surpass the usefulness of the salicylate and aspirin compounds, and these may rightly be ordered in large doses—e.g., aspirin grs. 15 four hourly—at least in the acute stages.

PRURITUS

(Dr. J. E. M. Wigley)

Pruritus, from the Latin *prurire to* itch, is a common cutaneous symptom. It is not the name of an organic cutaneous disease and the word is not synonymous with prurigo. Prurigo is an organic disease characterised by extremely itchy papules or nodules, often enlargement of lymphatic glands, and a very chronic course. The adjective to be used to describe an itchy condition is "pruritic."

Itching is a symptom which is present in every one of us at some time or other, either as a mental condition (Cassius was accused of having "an itching palm") or as a result of the action of some irritant; but the intensity of the subjective phenomena varies greatly in different subjects. What would excite an uncontrollable desire to scratch in some, seems to cause others little or no discomfort; though if the sensation is really severe even the most strong-willed or phlegmatic can seldom resist it for more than two or three minutes. With the giving way and scratching the symptoms often become worse, and a mild degree of pruritus may be greatly aggravated by the indulgence—a sequence of things not unknown in other conditions.

We do use the word pruritus to describe an often very distressing condition, which is essentially a sensory-neurosis of the skin, and in which any objective signs are secondary to the scratching indulged in, or to the medicaments applied either by the sufferer himself, or even prescribed by his medical attendant.

I propose to consider pruritus under three headings: (1) as a symptom of cutaneous disease; (2) in association with disease of internal organs; and (3) as an "essential" condition in which no organic disease is demonstrable.

Pruritus as a symptom of cutaneous disease.—This is by far the commonest of the three and every patient who complains of itching should be regarded as suffering from a cutaneous disease, or as a host of parasites, until exhaustive examination and investigation has been carried out. The commonest skin diseases which are nearly always accompanied by itching are: erythema, eczema and/or dermatitis, urticaria, papular urticaria, lichen planus, pityriasis rosea, herpes zoster, dermatitis herpetiformis, and keloid.

Occasionally psoriasis may be intensely itchy, but more commonly this is due to excessive enthusiasm in treatment. Syphilis "the great imitator" has been known to cause itching eruptions, though this is extremely rare. Sometimes lupus erythematosus can be very itchy.

But, as Dr. J. T. Ingram has recently and very truly said, "the commonest cause of itching is the itch," and to this may be added other parasitic infestation. I am quite convinced that, if every patient who complained of itching was regarded as suffering from scabies or pediculosis until it was proved that he was not, many people would be spared weeks, and even months, of unnecessary suffering and many medical reputations greatly enhanced. The parasites, both the acarus and the pediculus, are no respectors of persons, and, as Dr. Sequeira always taught, "linear scratch marks on the back should always make you search the underclothing for pediculi,

Dr. Robert [illegible] Library
[illegible] Medical [illegible]

even if the patient be an archbishop." Now that there is a bathroom in every "key flat" it is often very difficult to find the parasites; scabies, for example, can be one of the most difficult of all diseases to diagnose in a cleanly person. The distribution of the eruption is suggestive, however, and a really thorough search for the parasite will always fully repay the time and trouble taken. Dr. Henry MacCormac has recently recalled our attention to the transmission of parasites from animals, especially a variant of scabies from the domestic cat. The animal need not of necessity be a domestic one; the camel and the lion harbour an acarus, but I feel that the cases of infection from them must be scarce.

Pruritus associated with disease of internal organs.—Having excluded diseases of the skin and the ravages of parasites, it is essential to consider the diseases of internal organs as a cause of itching. The first disease that comes to all your minds is diabetes, and I need not say anything about that beyond remarking how frequently we see cases both in the out-patient department and in our consulting-rooms in which the urine has not been examined. Diabetes can be responsible for a local eczema of the genitalia, more often in the female, as well as the more generalised pruritus. Bright's disease is also sometimes associated with generalised itching—another good reason for examining the urine. You will all have thought of jaundice as a cause of itching, but other affections of the liver—cirrhosis and even carcinoma, as well as gall-stones—are occasionally responsible for it. Both ovarian disease and pregnancy are sometimes associated with pruritus, whilst it is often present in leukæmia. Hodgkin's disease is sometimes preceded by, as well as accompanied by, an itchy papular eruption, at first limited to the shins, which may be very difficult to differentiate from scabies.

The presence of various intestinal worms is sometimes the cause of itching, and Major-General W. P. Macarthur has recently drawn attention to the *Enterobius (oxyuris) vermicularis* as a cause of generalised pruritus as well as the more localised pruritus ani.

Under this heading, I may consider several drugs which give rise to itching, and it may be somewhat of a surprise to learn that they are mostly of the hypnotic type. Cocaine is well known for this and addicts will often produce the most quaint objects which they say are causing their irritation by "crawling under the skin." Allonal, Veronal, chloral, and antipyrin can all cause irritation, and it has often been observed that though morphia will relieve irritation at first, the symptom returns with increased vigour when the effect wears off. Phenolphthalein, becoming so widely used in chocolate laxatives, can cause irritation as well as various types of eruption.

Essential pruritus in which no organic disease is demonstrable is divided into two main groups—general and local.

Pruritus occurring uniformly over the whole cutaneous surface is rare, but it is quite common for waves of irritation to spread over the body. The itching is rarely continuous but is subject to paroxysms or crises and occasionally to complete intermission. Rubbing and scratching may extend the pruritic areas, may produce new ones, or transform a localised into a diffuse pruritus. Another result of rubbing and scratching may be a temporary cessation of the itching, perhaps long enough to allow the patient to go to sleep, or the production of a feeling of relief and comfort almost amounting to a feeling of well-being. This sensory cycle has been called by the French *Onanisme pruritique*.

Such generalised examples of pruritus are more commonly seen in elderly people, whose skin has become somewhat dried and inelastic. Sometimes the initial paroxysm is initiated by exposure to cold air, or it may on the other hand follow the taking of too many and too hot baths, an "am'able weakness" not at all uncommon among the female sex.

The commonest example of localised pruritus, and often the most difficult to deal with, is that affecting the anus and genitalia.

Pruritus ani is more common in males than in females and varies in intensity from a mild and transitory sensation to one of such severity that the sufferer is forced to scratch in spite of any circumstances of publicity or other consideration. It chiefly affects the middle-aged or elderly but it can occur at any age. Very often the most careful investigation fails to show any local cause, such as piles, anal tags, or discharges, and the skin does not even present any sign of scratching. Here I should like to add that the infection of the skin around the anus with the fungus, monilia, giving a whitish, sodden, and moist appearance, is usually accompanied by intense irritation.

Pruritus vulvæ is an equally distressing condition though it is rather more often associated with an obvious local cause, such as a vaginal discharge, diabetic urine, or gynæcological abnormalities. Here I would say, in the words of the late Dr. R. W. MacKenna, "it is well, when considering pruritus round any orifice of the body, to look for the cause inside the orifice." The effects of scratching are more often seen about the vulva in the form of excoriations, eczematous states, &c., whilst in cases of long standing the skin undergoes kraurotic changes and becomes white and dead like parchment and may be the seat of epitheliomatous changes.

Pruritus of the scrotum is much less common, but may be extremely resistant to treatment.

The palms and soles may be the seat of itching. This is again more common in elderly people and is more often associated with circulatory disturbances than with the more "popular" idea of gout or rheumatism. Itching of the nose is a common premonitory symptom of the common cold. It may also be a very troublesome occurrence during a visit to the dentist. The ears, again, are occasionally very itchy, but this is much more likely to be due to an accumulation of wax than to subconscious knowledge of unheard flattery. In some people pruritus tends to occur in the hairy regions of the body. It is often pronounced about the time of puberty when hair growth is at its maximum.

Time does not permit me to go into the question of *treatment* at any length. It will be obvious from what I have said that a thorough search for the cause will enable many patients to be relieved by the remedies appropriate to the cause. Unfortunately many cases, especially of the localised pruritus of anus or vulva, are examples of the idiopathic or essential pruritus. In these it is better to try the effect of simple soothing remedies before resorting to such remedies as the injection of A.B.A. (Anæsthesine, benzyl alcohol, and ether, in sterile olive oil) or the like, though I have seen good results from their use. Judicious exposures to X rays are often effective, but I must add a word of warning against their being used by one who is not fully aware of their potency for harm as well as good. Of the operations for dividing the nerves—e.g., Ball's operation—I have never seen a good final result.

Finally, in treating pruritus, always follow the sound line of very thoroughly searching for the cause, and never forget that you may find an acarus in the most unlikely patient.

SPECIAL ARTICLES

MEDICINE AND THE LAW

A Coroner's Jury on Night Calls

At a South Shields inquest last week the jury added to its verdict a rider charging a medical practitioner with neglect because, when summoned to visit a patient at 3 o'clock in the morning, he had not attended to the case at once. A young man whose parents were discouraging his intention of marriage took a dose of prussic acid. His mother found him lying on the floor at 3 A.M.; she told her husband, who sent her to fetch Dr. A. She said she rang the doctor's night-bell three times. When he came to the door, she begged him to come at once as her son was very ill. According to her account, the doctor said the son was not one of his patients and asked for his fee of five shillings. She went back to her husband and got the money and then returned to Dr. A and also went to the surgery of Dr. B, the family's doctor, who did not live at his surgery. Dr. B's locum tenens, telephoned for from the surgery, arrived at the house soon afterwards; Dr. A himself arrived a few minutes later. The mother complained that, if Dr. A had come when first summoned, her son would still have been alive. Dr. A explained at the inquest that the mother had said nothing about poison. He had told her that she was not a patient of his and that he should expect a fee for coming out at that time of night. She turned as if to go away and, thinking that his services were not required, he went to bed. The coroner said that Dr. A was acting in accordance with the law even if he declined to go out; perhaps the mother was hysterical and did not express herself clearly. If her statement were taken at its worst, added the coroner, it meant no more than that Dr. A stipulated for his usual fee for a night call. Doctors as a rule were generous and did what they could; but they were sometimes called out by hysterical people on a wild goose chase and were not always paid for their kindness.

The jury was evidently impressed by the mother's account. Her anxiety was natural. It is also natural that even a doctor should sometimes want a night in bed. In fact, as the coroner remarked, there was something to be said on both sides.

Ambulance Payments in Default

An ambulance service in every district is nowadays an obvious necessity; there are districts, however, which are neither so rich nor so large as to be able to institute and maintain facilities on the metropolitan scale. Thus at a recent meeting of the Ringwood and Fordingbridge rural district council the chairman reported that the existing arrangements were financed by fees paid by persons picked up and taken to hospital, but that the fees were not being paid and therefore the service was in danger of being terminated. Some years ago, it appeared, a local resident provided an ambulance for accident cases; the arrangement was a financial loss and he had to abandon it. In 1931, after several bad traffic accidents, he was persuaded by the district council to start the ambulance again on payment of a subvention of £30 a year. This sum was meant to cover the cost of maintenance, insurance, licence, &c.; in consideration of this payment, he undertook always to have a man ready to drive the ambulance. It was intended that patients should pay for being conveyed to hospital and the charge of 25s. was deemed suitable. Unfortunately these fees, due from individuals, were now about £30 in arrears. If the ambulance-owner was unable to collect his fees, he would cease to provide the service. If the district council had to take over the service, a proper vehicle would have to be bought and the wages of at least two trained men would have to be paid. This would amount to something like £500 a year. Apparently the police, being often the first persons on the scene of an accident, usually sent the message to secure the attendance of the ambulance. This easily created the impression that it was a gratuitous service entirely paid for from public funds. There were, said the chairman of the council, many people who thought it quite right not to pay what they owed to the Government or a public authority, but here it was a private person who was being kept out of his money. The defaults in fees due to medical practitioners for services to the victims of traffic accidents afford a parallel.

FOURTH INTERNATIONAL CONGRESS OF EXPERIMENTAL CYTOLOGY

The fourth International Congress of Experimental Cytology was held at Copenhagen on August 10th–15th under the presidency of Prof. T. Huzella, Dr. Albert Fischer acting as local president.

The term "experimental cytology" is always very widely interpreted at this congress, and at the Copenhagen meeting an enormous range of subjects was covered. Two sessions were devoted to the physical chemistry of the cell, one to histo-chemistry, one to cell respiration and cell metabolism, and four to experimental morphology.

The last two sessions dealt with matters of medical interest—namely, the experimental pathology of the cell and the effect of radiation upon the cell. Among these papers may be mentioned that of J. Furth and J. S. Butterworth on the incidence and characteristics of neoplastic diseases among mice exposed to X rays. They showed that myelosis and lymphomatosis occurred among X rayed mice, and in two cases of myelosis the disease was transmissible to normal mice through many passages; its transmissibility depended on the presence of living immature myeloid cells. It was emphasised that a conspicuous increase of neoplasms occurred only in those organs known to be highly susceptible to X rays. H. Okkels and R. Overgaard described the effect of heating normal tissues and tissues of tumours with high-frequency currents; an immediate and profound capillary and endothelial reaction resulted from the treatment, and was particularly violent in the case of sarcomata, where regenerative phenomena did not seem to occur.

An important feature of the congress was the exhibition of the Carrel-Lindbergh perfusion apparatus in operation, which was personally demonstrated by Alexis Carrel and Colonel Lindbergh. The former also exhibited a number of lantern slides showing photomicrographs of histological sections of organs grown in the apparatus for different periods. When these were compared with similar slides of control organs, remarkably little histological difference could be detected between the normal and explanted tissue.

One evening was set apart for the exhibition of cinema films which showed a higher average standard than at any of the previous congresses. Films, demonstrating tissue cultures of gliomata and cells infected by psittacosis virus, were exhibited by John Bland who had collaborated with the late Ronald Canti in making the films.

The beautiful laboratories of Copenhagen University, which are among the most modern and best equipped in Europe, provided ideal accommodation for the meetings. Members of the congress will long and gratefully remember the generous hospitality which they received in Denmark.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

THE HYPOTHALAMUS

LAST week in Edinburgh, under the auspices of the William Ramsay Henderson Trust, the first two of four lectures on the hypothalamus were delivered. Prof. J. C. Brash presided, and Prof. Le Gros Clark, F.R.S., spoke on the morphological aspects of the hypothalamus. He pointed out that this important part of the brain weighs only 4 grammes in the human, and consists largely of grey matter. Though knowledge regarding its functions is limited, its importance is indicated by the observations that disturbances of its function result in abnormalities of the vasomotor and visceromotor systems of the body, of the sleep mechanism, and of carbohydrate and water metabolism. The hypothalamus is developed in all the vertebrate series. In the higher forms its size becomes smaller in relation to the size of the brain as a whole, but its structure becomes more complicated and more differentiated. The hypothalamus is developed in relation to the medial forebrain bundle and the pituitary gland is partly developed from it. The hypothalamus and the pituitary together constitute one complex neuroglandular structure. They have the same developmental origin and are closely linked in their vascular structure. The hypothalamus may be divided into three main parts: the pars supra-optica, the pars tuberalis, and the pars mamillaris. Lying between the last two is the posterior hypothalamic body. The pars supra-optica contains the paraventricular nucleus and the supra-optic nucleus. The supra-optic nucleus has a definite relationship to the pituitary, a tract of fibres passing from it to that gland and a small local lesion in this tract can be responsible for diabetes insipidus. The paraventricular and supra-optic nuclei are very vascular: this is possibly related to the secretory activity of the nerve-cells of these nuclei. Drops of colloid material have been observed in these cells. The pituitary has a portal circulation of its own, for, from the sinusoids of the pituitary, veins pass up the infundibulum to break up again in the hypothalamus into capillaries. Secretion from the pituitary may pass up these veins to control hypothalamic cells. The tuber cinereum contains the nuclei tuberis which may be concerned with the temperature-regulating mechanism. The posterior hypothalamic area is regarded as the main efferent mechanism of the hypothalamus. It gives origin to a tract which passes along the floor of the fourth ventricle and which has been traced to the motor nuclei in the brain stem. It is through this periventricular system that the hypothalamus is believed to control the lower motor neurones and the sympathetic neurones of the brain stem and spinal cord. The functions of the mamillary bodies are obscure, but the study of certain cases of encephalitis and the results of experimental injury to the mamillary bodies suggest that they are concerned with the mechanism which controls sleep. Finally the lecturer pointed out that the prefrontal area is connected directly with the hypothalamus by a tract through which visceral and emotional reactions may be controlled.

The second lecture on the functional aspects of hypothalamus was given by Dr. John Beattie, who pointed out that constancy of its internal environment is essential for the proper functioning of the body. He adopted as the text of his lecture: "We are here to examine the truth of the statement that the physiology of the hypothalamus is the physiology of the environment." The influence of the hypothalamus on the reactions of the body to cold were first considered: the effect of shivering, respiration, metabolism, the heart and circulation, the pilomotor system, and the urine. After discussing the evidence for and against the hypothalamic control of these bodily reactions, Dr. Beattie concluded that, while the shivering reaction could not be caused by the hypothalamus, the respiratory responses to cold were probably controlled by this region of the brain. The rise of blood-sugar associated with cold failed to occur experimentally when the posterior part of the hypothalamus is destroyed. The hypothalamus may produce a rise in the blood-sugar either by activating the suprarenals or by stimulation of the sympathetic nerves to the liver. It has been suggested that the pituitary can, under the influence of the hypothalamus, produce a diabetogenic precursor. The rise in the pulse-rate and blood pressure in response to cold is also probably a hypothalamic response. Erection of hairs following exposure to cold is abolished if the hypothalamus is destroyed. The high concentration of chlorides in the urine during the period of low body temperature is also abolished when the infundibular region of the hypothalamus is destroyed. There is, therefore, in most of the reactions resulting from exposure to cold, direct or indirect influence by the hypothalamus. Dr. Beattie discussed also the influence of the hypothalamus on the reactions of the body to heat. The thermosensitive zone of the brain is not the hypothalamus, but stimulation of this area produces vasodilatation. The centre controlling sweat secretion is also in this situation. The close connexions between the pituitary and the hypothalamus were then considered, also the nature of diabetes insipidus. It seems likely that an antidiuretic principle is elaborated in the pituitary gland and is activated in the tubero-mamillary region of the hypothalamus. There are evidently in the hypothalamic region two mechanisms which produce their effect peripherally through the sympathetic and the parasympathetic systems, and their common function is the maintenance of the internal environment at its optimum level.

ROYAL MEDICAL SOCIETY BICENTENARY

The 200th session of the Royal Medical Society of Edinburgh was inaugurated last Friday by Lord Horder. Dr. A. N. McFarlan, the senior president, referred to the bicentenary endowment fund and expressed the hope that it would suffice to ensure the preservation of the library and rooms of the Society in a state worthy of its traditions. Lord Horder spoke first of some of the great figures in medicine whose names were on the roll of the Society, which is the oldest association of students of medicine in Great Britain, and proceeded to discuss the relation of the doctor to the happiness of the people. He maintained that there is a collective state of mental well-being something akin to what the financiers called "confidence," and that the doctor was an important factor in the preservation of the public happiness. The recognition of the psychological factor in the patient's disease was nothing new, was indeed as old as Hippocrates. The introduction of psychology as one of the compulsory subjects in the medical curriculum was long overdue. No one would contest the proposition that anxiety states caused many diseases, both organic and functional; the doctor must, therefore, interest himself in the patient's happiness and must give the best guidance he can to ensure and maintain it. Lord Horder visualised the Ministry of Health as the ministry of public happiness whose concern would include the treatment, perhaps, of the political hyperpyrexia of recent days. It was of paramount importance that doctors should be detached from the general clamour of the left and of the right. We must continue to merit and enjoy the public's confidence. There was a need for proper feeding and housing, leisure for play, noise control, and for the giving to each human being a chance before he is born. While agreeing that physical training is required in order to raise the level of physical fitness of the nation, he deplored the tendency to uniforms and parades. We should try to secure physical fitness and happiness for the people of this country in order that they shall preserve their mental poise when large sections of humanity are losing it. This mental poise, if only it can be kept, will yet save civilisation.

The vote of thanks accorded to Lord Horder on the motion of Mr. Henry Wade, president of the Royal College of Surgeons of Edinburgh, was seconded by Dr. H. M. Adam.

IRELAND

(FROM OUR OWN CORRESPONDENT)

USE IN ADVERTISEMENT OF THE WORD "SURGERY"

A PROSECUTION under the Medical Practitioners Act, 1927—the first, it would appear, to be brought under the Act—came before the High Court of the Irish Free State last week, by way of a case stated. The Attorney-General, according to a report in the *Irish Press* of Oct. 15th, had brought a summons against Harold C. Moscow, trading as Maxton Saunders and George Prescott and Sons, 13, Merrion-row, Dublin, arising out of an advertisement in the *Southern Star* newspaper announcing a visit by the defendant to Skibbereen, and stating that "his surgery in Cork is the mecca of sufferers of defective sight." On behalf of the Attorney-General it was submitted that the use of the word "surgery" amounted to implying that the defendant was a registered surgeon. It was urged that there could be no difference between a person who said, "I have a surgery," and one who said, "I am a surgeon." The defence argued that the section of the Act referred only to descriptions of persons and not of places. The district justice dismissed the summons but stated a case for the decision of the High Court. The case was heard last week by Mr. Justice Sullivan and Mr. Justice O'Byrne, and the decision of the district justice upheld. Mr. Justice Sullivan stated that it would have been open to the prosecution to charge the defendant with an offence under another portion of the section—namely, that he falsely and wilfully represented himself to be a person who was registered in the Medical Register. Mr. Justice O'Byrne said that in so far as it was held by the district justice that the offence as charged was not proved he was of opinion that the district justice was right. He could not, however, agree that the section could not be held to apply to the application of misleading names to a premises. He thought that the Court's answer to the appeal should be qualified by the use of the words, "Having regard to the way in which the prosecution was framed," so as to make it clear that the Court was not deciding that a person could not be convicted under the section for the terms by which he described his place of business.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

The annual dinner of the president and fellows of the Royal College of Physicians of Ireland was held in the College Hall on Oct. 17th, being the eve of St. Luke's Day. Dr. J. A. Matson, the president, was in the chair, and a company of some 70 fellows and guests were present. Among the distinguished guests were the Lord Mayor of Dublin, the president of the Royal College of Surgeons in Ireland, the governor of the Bank of Ireland, the president of the Incorporated Law Society, and the president of the Royal Society of Architects of Ireland. Greetings were received from Lord Dawson of Penn on behalf of the Royal College of Physicians of London.

BUCHAREST

(FROM OUR OWN CORRESPONDENT)

REGULATION OF THE INLAND MANUFACTURING CHEMISTS

OWING to the currency restriction law, importers of foreign drugs obtain the necessary currencies to pay for these from the National Bank at the quotation price, plus 44 per cent. to make up for the difference between the official quotation and the rate of exchange of foreign currencies. The price of all imported drugs has been raised by about 50 per cent. This procedure has been exploited also by the local manufacturing chemists, who likewise raised their prices by the same amount, arguing that the raw materials which they use in manufacture became dearer by 44 per cent. The government have protested, being well aware that manufacturers import at most only a fifth of the drugs they use, the rest being obtainable in the country. An order has therefore been issued reducing prices to their former level, offenders being rigorously prosecuted. In any case, drugs have never before been as costly as they are now, so that a medical prescription is regarded at present as a luxury which only the well-to-do can afford. It is an everyday occurrence for a physician who visits a patient and asks if he takes his medicine regularly to be told: "I am very sorry but I have not had it made because the chemist charged (say) 200 lei for it" (200 lei is the price of 25 lb. of best grade beef). Some patients who may have the 100 lei for the doctor's fee, do not consult him because they have not the other 100 lei for the medicine. In such circumstance quacks flourish, the greatest being some of the pharmacists themselves.

MEDICAL PRACTICE IN ALBANIA

In the post-war years public health in general and the standard of the competency of physicians in particular has advanced a great deal in Albania. The State is granting a large number of scholarships for medical students to study abroad, so that the returning physicians introduce western ideas. The latest achievement is a new bill, which lays down rules and regulations about medical practice and establishes a medical chamber. Hitherto quacks and magicians could practise to their hearts' content, but the new law will apply very strict measures against them. Foreign physicians may now practise in Albania only with the government's permission. Because the country is sufficiently supplied with its own doctors, this is given only in exceptional cases.

REDUCTION IN THE COST OF WATER

In the town of Oradea (population 100,000) the city magistrate raised the price of water by regulation and caused the population to economise in its use. Thereupon the council of the Medical Chamber energetically protested against any measure that might lead to the decrease of water consumption. Water, they said, is a highly important commodity, and to promote its accessibility is an elementary human and civilian duty, just as it is with fresh air. Causing it to become dearer for technical or commercial reasons may lead to incalculable and far-reaching harm. The council detailed the probable consequences of economising with water by reducing the quantity of water available for washing, laundry work, and cleanliness. They also protested against the system of reckoning the quantity of water according to the number of rooms: this, they say, is antisocial, unjust, and unhygienic. They established the fact that, taking as a basis the number of rooms for families living in lodgings with one or two rooms, the minimum of 30 gallons of water a day will not be secured, and public hygiene is thus greatly endangered. Another objection was made to a paragraph in the regulations, by which the water-supply can be stopped for varying periods as a punishment for non-payment of rates. Upon this intervention the municipal council passed the memorandum of the Medical Chamber to the city medical officers of health, after whose verdict the regulation has been cancelled.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index.

FROM A DEPARTMENTAL DOCTOR

IV

A FEW years ago the present writer was asked to give an address on general practice, or the doctor's life, or some such topic, to a society of medical undergraduates at Oxford. It was a delightfully pleasant and informal occasion, fortified by tankards of beer, and the meeting eventually broke up into a series of miniature viva voces. Which was the best hospital to go to for medical or surgical teaching? Where were the best prospects of ultimately being made a house surgeon or resident accoucheur? Did London or the provinces offer the better opportunities for the consultant of the future? But one hitherto unknown undergraduate, taking advantage of a quiet moment, propounded the embarrassing question as to whether he should become engaged to be married. He could not afford, he explained, to be married before he was qualified and in practice; and that would not happen, at the earliest, for another four or five years. It was an unexpected and seemed, at the time, a rather naïve and even absurd question. But was it not after all—provided it had been put to somebody better informed—not only a reasonable but extremely cogent one? Is not a doctor's wife—even professionally speaking—at least as important as himself? And that being so, would not there be much to be said for a relatively long engagement?

* * *

Wisdom would reply, of course, that it all depends. And so, no doubt, it does. But at least it must be admitted that a girl who thinks of marrying a doctor ought to be particularly sure both of herself and him. She will, in most cases, be marrying a man much of whose professional work will be done at home[1]; and she will be living in a house that, less than that of any other woman, she will be able to call her own. It is true that some of its rooms will be nominally private. But in fact they will only be extensions of the waiting-room and surgery. Even with the ablest of private secretaries—and not many doctors can employ such in their earlier days—they will be invaded by telephone calls, if not by actual clients. She will also be assumed, in the absence of her husband, to be herself the possessor of medical knowledge; and if she should have children, she will inevitably be regarded as a local authority on children's upbringing. She will also be marrying a man who, on the most critical social occasions, may be obliged to forsake her, and who is liable to be called out, and whose maledictions she may be awakened to hear, at any hour of the night. She must further be ready to hear her tea-parties and dinner-parties described as propaganda for the practice; and so, indeed, they will be if they are charming and not given for that purpose. And she must be the soul of discretion on those and all other occasions.

* * *

So important, in fact, are doctors' wives, and the tasks of many of them have been so harassing, that history's tribute to them as a class has been strangely meagre. All that we know of Harvey's Elizabeth, apart from the fact that she was the daughter of a royal physician, is that she bore him no children, was kind to the poor, had a favourite parrot, and inherited a hundred pounds from one of her husband's brothers. Even her grave is unknown. But, since Harvey's merchant brothers adored their Will, John's little legacy may be taken as some proof that she had made him happy. Scarcely more has been recorded about Sydenham's Mary, whom he married at Wynford Eagle, still one of the loveliest of Dorsetshire farmsteads. But she bore him three sons, and doubtless no news may be taken as good news. Hans Sloane, as was perhaps consonant with the first medical baronet and architect of one of the largest fortunes ever amassed by a doctor, married—not too early—a wealthy widow, a few years older than himself. But Hans was a good-natured and placid person, already well up the ladder of success; and if little is known, or to be found in his vast correspondence, about his Elizabeth, she lived long enough to see their two daughters admirably and suitably married, the one to George Stanley of Paultons, and the other to Lord Cadogan. Far less easy, probably, was the lot of John Hunter's Anne, wooed when she was a girl, and apparently, after eight years' waiting, rather off-handedly married. "Dear Brother," he wrote to William, "To-morrow morning at eight o'clock and at St. James's Church I enter into the Holy State of Matrimony. As that is a ceremony which you are not particularly fond of, I will not make a point of having your company there. I propose going out of Town for a few days; when I come to Town I will call upon you. Married or not married, ever yours." But Anne was pretty and sociable, well-liked in the circle of the Thrales and Dr. Johnson, and a writer of amiable verses. One of her songs, indeed, "My Mother Bids me Bind my Hair," must have introduced her to thousands of homes where her illustrious husband was quite unknown; and although he disliked her parties, which he described as "kick-ups," she always remained his Anny, affectionately alluded to in his letters, and seems to have played her difficult part with unruffled loyalty. Hardly less exigent, too, must have been the demands of James Simpson on his Jessie, married for love but also abruptly, in the end, because Jamie deemed this necessary for his career. He was 28 at the time and still in debt, though his practice was beginning to grow, and he had just applied for, but not yet obtained, the university professorship in midwifery. He had in fact so plastered Edinburgh with canvassing letters that the senior element in the university had reacted rather vehemently from this tornado-like baker's son. But Jamie believed in his star, decided meanwhile to forearm himself against the possibly handicapping charge of celibacy, and six weeks after his wedding was able to tell his wife that he had been elected by one vote. On the following day he took her for a honeymoon. Three years later they were out of debt; and in another ten he was immersed in a practice said to bring £80,000 a year to the Edinburgh hotels. Indeed, the hotels were often so full that sick ladies were occupying all Jessie's spare bedrooms; and Jamie's impetuous hospitality—he once announced at luncheon that he had invited the whole of his class to a dinner and dance that same evening—must have given her plenty to do.

* * *

But perhaps Jenner, in his blue coat, yellow buttons, and shining jockey-boots, riding through his Gloucestershire lanes, was the most similar of all these to a general practitioner; and his Catherine Kingscote, though not very strong, seems to have been the model of a general practitioner's wife. Over their Berkeley home, to which he returned from his rounds and diversions—his little medical dinners at Rodborough and Alveston and the houses of his friends—she seems to have presided like a restful angel. And he once missed a birthday party, the greatest tribute he could have paid her, because she happened to be unwell. It was reported of her, when at last they were parted, that she was "consistently loving and tranquil"; and this, if it had been thought of, might have suggested a reply to the Oxford undergraduate. "Yes," might have been the answer, "if the lady of your devotion is both loving and tranquil."

PANEL AND CONTRACT PRACTICE

Extension of Service

THE three national associations of insurance committees have all met within the past few weeks. At the Welsh meeting Dr. H. G. Dain after reviewing the existing conditions affecting the profession under the Insurance Acts had a look into the future. He felt it impossible to imagine staying indefinitely in the position existing to-day. Some day public opinion, and then a government, would want to make the service more complete and to link it up with other medical services. But, he said, I see no reason why the medical services should not proceed by development with the present machinery; any linking up could readily be provided. Dr. Dain would obtain the necessary money by increased contributions, rather than through taxes. He would make a start with the provision of consultants and specialists giving them the necessary pathological and X ray facilities. Hospital care was being increasingly provided by means of contributory associations and through council hospitals. Doctors, he thought, would like to see all treatment—whether medical benefit, specialist services, ophthalmic, or dental benefit—made statutory benefits under the Act, and available equally to all insured persons. Favourable sickness experience and economical management could then be reflected in more generous provision for sickness, disablement, and maternity.

Gap on Leaving School

Turning to the extension of medical benefit to other groups of persons, Dr. Dain suggested making a start with workers between school leaving age and 16 years. Here Dr. Dain was certainly prophetic, for, at the meeting of the English association last week Sir Kingsley Wood, after remarking that the Government had already announced their intention to see this gap filled, went on to anticipate that the programme for the coming session would include a Bill to deal with this problem. Proposals for improving the health services must, the Minister said, be considered not only with regard to their cost, but in the order of priority in relation to other desirable improvements. Dr. Dain had a good word for insurance committees and regarded their success in dealing with difficult medical questions as being largely due to the fact that the committees had been advised by practitioners actually doing the work, rather than by a special medical officer of their own. He was opposed to the suggestion that medical benefit should be administered by local authorities. If, as he hoped, they were satisfied that the best method of rendering medical service to individuals is that which allows free choice, and allows the patient a direct voice in the management of the service, then let them say so early and often, not waiting until a scheme had been developed in which these things might not be provided.

"Medicine" Complex in Scotland

At the Scottish conference Miss Muriel Ritson, controller of insurance for Scotland, dealing with the evergreen prescribing problem, said that there were unfortunately certain medical practices and certain areas in Scotland where there were signs that the insured population was acquiring a "medicine" complex, while practitioners did not always seem to be prepared to deal with the evil. The cloud on the horizon was as yet no larger than a man's hand, but if it grew it meant not only the encouragement of morbidity and neurosis in the patient, but the degradation of the practice of medicine. This was, she said, one aspect of the nation's "drink" problem, and Scotland must not lose her well-earned distinction of being a sensible and sober nation. The department of health would again appeal to insurance and panel committees to maintain the prestige of the nation.

PUBLIC HEALTH

Boarding-out in Scotland

For eighty years or more it has been the policy of the Scottish Board of Control to board out quiet chronic patients who do not require elaborate institutional care but are not mentally capable of full responsibility. Last year for instance there were 1190 mental patients and 1440 mental defectives outside institutions, the numbers inside being respectively 15,687 and 2974. It is the chief duty of the deputy commissioner of the Scottish Board to visit patients under guardianship, and this work has recently been described (Medical Women's Federation Quarterly Review, October, 1936, p. 42) by Dr. Kate Fraser, a commissioner of the Board. Up to the passing of the Act of 1913 many of the patients boarded out were imbeciles, but after 1913 it was found, rather to the Board's surprise, that the difficult high-grade defective could often be boarded out, especially after a period of training in a special school. Defectives and mental patients are not boarded in the same house. In the large cities the patients are generally in groups, but elsewhere many of them are scattered singly or in groups of two, three, or four, never more, in private houses. For the male psychotic and defective a croft or a small farm is generally chosen. For women in the Highlands it is generally the village, and in some of these villages two or three women patients, some of them elderly, may be found in practically every other house. The defective girl must needs be banished to a more or less isolated country cottage or to a small croft where a woman is in charge. A difficulty is that she does not get the same outlet for her energies as the boy in the fields. Many male patients have shown their mettle in large dairy farms in Ayrshire and Stirling, but the defective boy is not put to associate with hired hands. Recently the Islands of Mull, Islay, and Arran have been increasingly used for higher grade defective boys, especially those who have got into the hands of the police.

The selection of guardians requires much care. There is no age-limit in Scotland for guardianship; several of the guardians are over 80. Various reasons induce people to become guardians: it may be to get help on the farm or croft; it may be for the money, though this averages only 13*s.* 5*d.* a week; sometimes it is for companionship. It seems that guardianship is becoming in Scotland an hereditary craft. Some of the boarded-out patients have been 30, 40, 50, and even 60 years under guardianship in some houses, and handed down from the care of father to that of son or daughter or even grandson or granddaughter. These hereditary guardians are almost invariably good guardians, for in practice, whatever the reason for taking on the duties, the guardian almost invariably becomes attached to the patients. Dr. Fraser remarks how often the guardian pleads for just "one more chance" for a troublesome charge, and this last chance is often successful. Male patients must have separate beds, but women often prefer to sleep in the same bed as their guardians. Guardians must provide their patients with the same kind of food as they have themselves, and it is taken at the same table unless for any special reason. At first indeed many patients are inclined to overeat, and Highland hospitality rather encourages this. Recently the question of leisure occupation is becoming more and more important and is always discussed by the commissioner with the guardian. During the last general election, Dr. Fraser remarks, one guardian took his two high-grade defective boys to political meetings.

This pioneer work in Scotland, along with some rather startling examples of intensive boarding-out in Holland, have led to the increasing use of the method in this country, partly to save the further enlargement of institutions for the mentally defective, and partly owing to recognition of its value as a means of socialisation. It is for instance the experience of the Guardianship Society, which advises many local authorities in the southern home counties, that a large number of defectives of all grades are happier in private houses than in institutions. Isolation is more difficult to obtain in communities more urbanised than the Highlands of Scotland, and in practice it is not found necessary —or even desirable—to find the isolated country cottage or farm, where from their very isolation effective supervision of the home conditions is less easy to ensure. It is one of the objects of guardianship to make these patients feel that they are members of the general community, and too much isolation is likely to defeat the attempt at resocialisation. Banishment of delinquent boys to island communities too may be good up to a point, but what is needed most is to alter the outlook on life while their minds are still plastic. Some of them should be capable of returning to the life of the community after careful but sheltered training.

Leave for Service in Spain

A doctor employed in a municipal hospital in Birmingham applied for six weeks' leave of absence without pay in order to serve with a medical unit in Spain. The city's medical officer of health took the view that the applicant was one of three senior officers in a hospital which was hard pressed and that the work of the institution could not be fully maintained if he were allowed to go. The public health committee endorsed this view and refused the application. The general purposes committee agreed; if the applicant were given leave of absence without pay, it would mean either that his post was unnecessary or that he would have to be replaced; he had been engaged for a specific purpose and there might be difficulty in obtaining a locum tenens of the same standard of ability. In the city council on Oct. 13th the decision was challenged by the moving of an amendment to the report of the general purposes committee. The amendment took the form of a declaration that the council, being sympathetic to the relief of pain and suffering arising out of the civil war in Spain, was willing to grant reasonable leave of absence without pay to any employee of the corporation who desired to undertake ambulance or medical service, "provided such absence can be arranged by the department concerned." The amendment added an instruction to the appropriate committees of the council to consider the desirability of issuing regulations for this purpose to the various departments of the corporation. In the debate which followed it was suggested on the one side that any medical man in the employ of a large corporation like Birmingham should have the opportunity to give service in the cause of humanity. It appeared that the doctor had on some earlier occasion been given six weeks' absence for purposes of study. Speakers argued that he could evidently be spared and that anyhow there was no finer training to be obtained than in an ambulance unit; the whole organisation of the city's health services would not crash in ruins if one of the doctors had six weeks' leave. Somebody mentioned that the applicant wanted leave to go to Madrid, and the inference seems to have been drawn that the refusal to let him go was inspired by dislike of the Spanish Government's politics. The debate ended in the defeat of the amendment by the narrow margin of 52 votes to 48, 9 councillors remaining neutral.

As the proposal contemplated absence without pay, no indignant ratepayer could presumably have complained if leave had been granted; there would have been no additional expenditure wherein a district auditor could find material for a surcharge. During the recent legal vacation questions have been raised whether a trade union was entitled to send financial assistance to relieve distress in Spain. These questions remain to be answered. Meanwhile, whether or not the Birmingham debate was a skirmish between interventionists and isolationists, the public health committee has carried the day with its prosaic insistence that a doctor in a municipal hospital signs on for service on the home front.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 10TH, 1936

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0; scarlet fever, 1996; diphtheria, 1278; enteric fever, 51; pneumonia (primary or influenzal), 571; puerperal fever, 35; puerperal pyrexia, 108; cerebro-spinal fever, 8; acute poliomyelitis, 20; acute polio-encephalitis, 2; encephalitis lethargica, 8; dysentery, 31; ophthalmia neonatorum, 82. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals for the London County Council on Oct. 16th was 2816, which included: Scarlet fever, 1021; diphtheria, 840; measles, 55; whooping-cough, 342; puerperal fever, 16 mothers (plus 7 babies); encephalitis lethargica, 285; poliomyelitis, 3. At St. Margaret's Hospital there were 10 babies (plus 6 mothers) with ophthalmia neonatorum.

Deaths.—In 122 great towns, including London, there was no death from small-pox or scarlet fever, 6 (1) from enteric fever. 3 (0) from measles, 12 (2) from whooping-cough, 32 (8) from diphtheria, 71 (19) from diarrhœa and enteritis under two years, and 21 (4) from influenza. The figures in parentheses are those for London itself.

The deaths from enteric fever outside London occurred at Mitcham, Newcastle-upon-Tyne, Nottingham, Plymouth, and Poole. The deaths from measles were reported from Newcastle-under-Lyme 2, Stoke-on-Trent 1. Deaths from diphtheria were reported from 17 great towns, Manchester, Sheffield, and Birmingham each 3.

The number of stillbirths notified during the week was 252 (corresponding to a rate of 39 per 1000 total births), including 40 in London.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Comdrs. R. K. Shaw, M.C., to *Defiance*; A. G. Bee to *Devonshire*; and R. A. Brown to *Victory* for R.N.B.

Surg. Lt.-Comdr. D. Duncan to rank of Surg. Comdr.

Surg. Lt.-Comdr. (D) A. W. Wallace to *Pembroke* for R.N.B.

Surg. Lts. H. J. Bennett to *Leith*; and G. A. Maxwell Smith to *Devonshire* (on recommg.).

N. M. McArthur entered as Surg. Lt. for short service and apptd. to *Victory* for R.N. Hosp. for course of instruction.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Lt.-Comdr. (D) E. D. Collins to *Pembroke*.

Surg. Lt. (D) C. E. Brittan promoted to Surg. Lt.-Comdr. (D).

Surg. Sub-Lt. S. E. Cooke to be Surg. Lt.

ARMY MEDICAL SERVICES

Col. F. C. Sampson, D.S.O., late R.A.M.C., having attained the age for retirement, is placed on ret. pay.

Lt.-Col. A. G. Wells, D.S.O., from R.A.M.C., to be Col.

Col. Alan G. Wells qualified in 1908 from St. Mary's Hospital, and immediately joined the R.A.M.C., becoming Capt. in 1911, and was stationed at Kasauli, Punjab. He was in the European War in France, Belgium, and Italy, was mentioned in dispatches four times, received the 1914 Star, the D.S.O. in 1917, and two medals. He is 54.

ROYAL ARMY MEDICAL CORPS

Maj. A. E. S. Pringle-Pattison to be Lt.-Col.

Capt. F. McL. Richardson to be Maj. (provisional).

Lt.-Col. and Bt. Col. R. C. Priest, K.H.P., R.A.M.C., to be Temp. Col. whilst empld. as Consulting Physician to the Mil. Forces in Palestine and Egypt.

Lt.-Col. S. W. Kyle, R.A.M.C., to be Temp. Col. whilst empld. as A.D.M.S., 5th Div.

Maj. A. G. Harsant, O.B.E., R.A.M.C., to be Temp. Col. whilst empld. as Consulting Surgeon to the Mil. Forces in Palestine and Egypt.

REGULAR ARMY RESERVE OF OFFICERS

Col. J. Mackenzie (late R.A.M.C.), having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

TERRITORIAL ARMY

Capts. to be Majs.: C. E. Fenton, F. J. L. Lang, and J. G. Morgan.

TERRITORIAL ARMY RESERVE OF OFFICERS

Army Dental Corps.—F. G. B. Wilson to be Lt.

ROYAL AIR FORCE

Flight Lts. promoted to the rank of Squadron Leader: T. W. Wilson and G. W. Paton.

Squadron Leader H. McW. Daniel is placed on the retired list at his own request.

Flight Lt. C. H. Smith is transferred to the reserve, class D.

Flight Lt. G. H. J. Williams to No. 3 Flying Training School, Grantham.

Flying Offr. R. A. Cumming is promoted to the rank of Flight Lt.

INDIAN MEDICAL SERVICE

Lts. (on prob.) to be Capts. (on prob.): T. P. Mulcahy and R. J. Henderson.

Lt. E. H. Wallace is restd. to the estabt.

Indian Medical Department.—Asst. Surg. (1st Class) Horace Mullins to be Lt. (Sen. Asst. Surg.). Maj. (Sen. Asst. Surg.) T. J. Stuart retires.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—Post-graduate courses to be given during November and December: medicine, surgery, and gynæcology at the Royal Waterloo Hospital (Nov. 2nd to 14th); urology at St. Peter's Hospital (Nov. 2nd to 14th); dermatology at St. John's Hospital (Nov. 2nd to 26th); venereal disease at the London Lock Hospital (Nov. 23rd to Dec. 19th); proctology at St. Mark's Hospital (Nov. 30th to Dec. 5th); thoracic surgery at the Brompton Hospital (Dec. 7th to 12th); dermatology at the Blackfriars Skin Hospital (Dec. 7th to 19th). A clinical and pathological M.R.C.P. course will be held at the National Temperance Hospital at 8 P.M., on Tuesdays and Thursdays from Nov. 24th to Dec. 10th; M.R.C.P. courses have also been arranged in chest diseases at the Brompton Hospital (Dec. 7th to Jan. 8th); in diseases of the chest and heart at the City of London Hospital, Victoria Park (Wednesdays and Fridays, 6 P.M., Dec. 9th to Jan. 8th); in endocrinology at the National Temperance Hospital (Monday, Nov. 23rd, and Wednesdays and Fridays, from Nov. 25th to Dec. 10th).

Week-end courses in physical medicine at the St. John Clinic and Institute of Physical Medicine (Nov. 7th and 8th); in general surgery at the Princess Beatrice Hospital (Nov. 14th and 15th); in infants' diseases at the Infants Hospital (Nov. 21st and 22nd); and in chest diseases at the Brompton Hospital (Nov. 28th and 29th). Detailed syllabuses of all courses can be obtained from the secretary of the fellowship, 1, Wimpole-street, W.1.

CORRESPONDENCE

CHLOROFORM

To the Editor of THE LANCET

SIR,—The restrained letter from Dr. J. E. C. Rouse in your issue of Oct. 10th on the subject of chloroform is most timely. It is the fashion in England to decry chloroform. During my service in India, as a civil surgeon, I estimate that I had chloroform administered for me at least 13,000 times with only two deaths. Further comment seems unnecessary.

I am, Sir, yours faithfully,

T. HUNTER,
Lieut.-Colonel, I.M.S. (ret.); late Civil Surgeon, Lucknow.

Ludlow, Oct. 15th.

FIXED DENTAL APPLIANCES

To the Editor of THE LANCET

SIR,—I was interested to read Dr. Bardswell's letter which supports my claim that, in favourable circumstances, fixed dental appliances can be free from the vices they have been so often accused of. In his case I understand that the teeth supporting the work were devitalised, and, this being so, it appears that even the much execrated "dead" tooth, with a little expert encouragement, can be usefully employed on occasion. *It is my experience*, however, that when compared with other and vital teeth in the same mouth the devitalised members may have shorter periods of existence, *and I try to* avoid interfering with the vitality of pulps for this reason.

But, as it is not a necessary part of the procedure now that teeth in the incisor region and elsewhere should be devitalised and excised in order to support "bridges," even the doubtful ones can feel satisfied that no new cause of apical infection can be introduced when this work is attached. This kind of restoration in most cases can be made so quickly, and with so little interference with the structure of the teeth which act as its supports, that there is small excuse for wearing a removable appliance which is apt to damage the structures it is in contact with. I am, Sir, yours faithfully,

Park-crescent, W., Oct. 16th. J. H. OLVER.

NEPHRITIS AND THE SERUM FEVER REACTION

To the Editor of THE LANCET

SIR,—Sir William Willcox in his address on clinical immunity, an abridgement of which appeared in THE LANCET last week, states that "If a patient is allergic, or has any disease associated with hypersensitiveness, such as exophthalmic goitre or nephritis, dangerous symptoms may be associated with the serum fever reaction." I agree with him to the extent that there are *certain* forms of hypersensitiveness the subjects of which are not suitable for serum treatment. But is nephritis one of these? Your readers will remember that when the serum treatment of diphtheria was introduced 42 years ago, it was accused of being the cause of certain morbid states of the kidneys. But in my experience that was so far from being the case that I published in your columns (1896, ii., 1450) three instances of patients, the subjects of the nephritis which *follows* scarlet fever, who were treated with serum without ill effects. I published subsequently the notes of two similar cases (Rep. of the Clinical Society's Committee on the Antitoxin of Diphtheria, 1898, p. 36). After that date I observed several cases of the same sort; so far as post-scarlatinal nephritis is concerned there is no harm, in my experience, in administering horse serum. I remember also one case of chronic nephritis, not due to scarlet fever, in which the patient who contracted diphtheria was treated with serum without any ill effect.

I am, Sir, yours faithfully,

E. W. GOODALL.

Hemingford Abbots, Hunts, Oct. 18th.

INFECTIONS OF FINGERS AND HAND

To the Editor of THE LANCET

SIR,—I have read Mr. Handfield-Jones's article and Sir David Wilkie's comments on it with great interest. There are but few engaged in the practice of surgery over a number of years who have escaped the tragic experience of the loss of a colleague or friend from streptococcal lymphangitis following a trivial injury. Whether the infection arises in the lip, or following the extraction of a tooth, or the prick of a finger, the outlook is the same. Looking back I realise that mortality was often the result of too active surgical treatment. There is no *place for the knife in* cases of acute *lymphangitis.* A minor lesion followed by red lines, rigors, and high temperature calls for conservatism. Operative surgery is *contra-indicated.* Handfield-Jones and Wilkie have emphasised this point. Patience and delay are the watchwords. Active measures must be left to Nature's powerful efforts at defence; conservatism on the part of the surgeon assists this activity to become effective.

By conservatism we mean, as pointed out by Wilkie, the injection of concentrated antistreptococcal serum, the light application of a Bier's bandage for three days above the infected area and heat to the limb. The injection of Prontosil as advocated by Handfield-Jones is full of promise. Personally I avoid stupes. Their application causes constant disturbance, the skin becomes soppy and a nidus for infection, the heat is transitory. Rest is essential. The limb should be splinted over copious layers of cotton-wool or encircled by an electrically heated pad. Many acute cases resolve under such management, but there are some which cause daily anxiety for many weeks. In the latter group the appearance of localised pus in the axilla or elsewhere is the first ray of hope. When localisation is manifest further delay is indicated; we should wait until the process of walling-off is complete. If the abscess opens spontaneously all will be well, if we hasten the process it should be by the mere prick of a sharp knife. No forceps should be introduced to enlarge the opening, no squeezing or milking of the abscess should be attempted. Fulminating cases seldom survive, death terminates the infection within two or three days. I have however seen many desperate cases recover when only the most conservative methods of treatment were employed and when abscess *formation* was patiently awaited.

It goes without saying that playing for time in anxious cases taxes *the power of restraint.* Time may be well employed by the giving of blood transfusions, the instalment of the glucose drip, and the employment of sunshine, artificial or real.

I am, Sir, yours faithfully,

Harley-street, W., Oct. 19th. W. I. DE C. WHEELER.

LONDON MEDICAL EXHIBITION

On Monday last this exhibition opened in the new hall of the Royal Horticultural Society in Greycoat-street, Westminster, and it will remain open till 6.30 P.M. on Friday the 23rd. More than 125 firms and organisations are exhibiting, and the immense range of their preparations and their activities is evident from the following notes on some of them.

Drugs and Pharmaceutical Preparations

(90) Allen and Hanburys Ltd. (Bethnal Green, E.) had a number of new specialties to introduce as well as their tried products. They have put up a convenient tablet called Magsyn for the purpose of combining the sedative action of magnesium with the analgesic effect of aspirin. The combination enhances the analgesic effect and increases the gastric tolerance for aspirin. Cremor Alkalinus M.S. is a fine suspension of magnesium silicate for the treatment of ulcer, and Cremor Alkalinus L. is a suspension of aluminium hydroxide and of osmo-kaolin for hyperchlorhydric dyspepsia and colitis. The Sodium Mandelate Granules "Allenburys" for urinary infections have a pleasant lemon flavour and are easily soluble: they are strongly bacteriostatic in urine at a pH below 5·3. The firm also market Lysantol disinfectant; Lixen senna preparation; and Haliborange, palatable halibut oil.—(67) Anadin Ltd. (12, Chenies-street, W.C.) had on view their well-known anodyne tablets, and made no secret of their formula. They recommended it as a non-depressant, non-habit forming sedative for relief of pain of all kinds and the alleviation of colds and catarrh.—(100) The Angier Chemical Co., Ltd. (86, Clerkenwell-road, E.C.), showed again their emulsion, which has been popular for forty years; and also Sagradol, a laxative combination of mineral oil and cascara sagrada which they recommend for constipation in pregnancy and after operation and in children.—(116) Anglo-French Drug Co., Ltd. (11 and 12, Guilford-street, W.C.), showed a range of therapeutic preparations, particularly picking out for mention Dimol, the recognised intestinal disinfectant, in tablets, syrup, snuff, and lavage powder; Bacte-Phages, bacteriophages prepared under the control of Prof. d'Herelle; Emge (Lumiere), magnesium hyposulphite for allergic conditions; and Phospho-soda, a liver stimulant and laxative forming a useful morning saline.

(19) Antibody Products Ltd. (Watford, Herts) showed their British-Bee-Venom which contains no formic acid; A.P.L. Broncho-Catarrhal Vaccine, made exclusively from first cultures from patients suffering from acute respiratory infections; Air-Borne-Dust-Proteins for asthma; and their older products Antibacsyn and Antimalignyn.—(7) Armour and Co., Ltd. (Armour House, St. Martin's-le-Grand, E.C.), displayed a full range of Glanoid glandular products, including a fluid extract of liver; a highly concentrated liver liquid in ampoules for injection; a concentrated fresh calves' liver extract for oral use; a liver and yeast concentrate for boils; a liver and iron mixture; posterior pituitary ampoules; and a suprarenal cortex of high concentration.—(44, 58) Bayer Products Ltd. (Africa House, Kingsway, W.C.) showed a number of new preparations in addition to the older Salvarsan, Prolan, Prominal, and Luminal. Prontosil is their chemotherapeutic preparation for streptococcal septicæmias, tested by the Therapeutic Trials Committee of the Medical Research Council. Atebrin is their latest synthetic drug for malaria; Betaxin is a vitamin-B_1 preparation, chemically pure and isolated from yeast, and Cantan is a chemically pure vitamin C; Bioferol is a new nutrient tonic on the basis of hæmoglobin and liver extract; Esmodil is a new drug for the stimulation of the parasympathetic system which differs a little from acetylcholine in that it acts purely on the vagus; and Icoral is a new analeptic acting on the respiratory and vasomotor centres and toning up the peripheral circulation at the same time.—(5) Bengue and Co., Ltd. (24, Fitzroy-street, W.1), had a large number of useful products on view, including Anaclasine, a combination of magnesium salts and twenty different peptones recommended for allergic conditions; Pernyase jelly for open suppuration; Noseptyl nasal drops; Panbial, a new nutritive tonic; Metanium, for irritating skin conditions; Iodeopirine, an electrochemical non-toxic iodine combined with aspirin, which is said to have an activity twenty times greater than that of the acetyl salicylates; and the well-known Lipiodol, Opobyl, and Pulmo Bailly preparations.—(87) Bisodol Ltd. (12, Chenies-street, W.C.) showed their antacid preparation of this name and offered clinical evidence of its value in all conditions requiring intensive alkaline medication, including pregnancy.

(37) Boots Pure Drug Co., Ltd. (Nottingham), displayed a range of their fine chemicals, especially pointing out those for the treatment of anæmia and syphilis, and antiseptics and organotherapeutic preparations. Pepsac, desiccated stomach, Hepastab, intramuscular liver extract, and Livron, compound liver extract with iron, have been in use for some years, and Insulin (Boots) and pituitary extract are also well known. A display card demonstrated the stages in the manufacture of insulin. A new and pleasant flavoured product is Ammoket Elixir of Ammonia Mandelate, while Neoket is a granular form of mandelic acid containing no ammonium chloride.—(140) British Drug Houses Ltd. (Graham-street, City-road, N.) have added a number of modern products to their well-known medical specialties, for example Anahæmin, the active hæmopoietic principle of liver obtained by the method of Dakin and West; Mandelix, elixir of ammonium mandelate, which has been found to be effective without the collateral administration of large quantities of ammonium chloride; B.D.H. Sex Hormone Preparations, including Gonan, pregnant urine hormone; Œstroform, in solution of three strengths and in tablets and pessaries; Progestin, corpus luteum hormone; and Mersalyl, the sodium salt of salicylamide-O-acetic acid, containing from 38·5 to 40·5 per cent. of non-ionisable mercury, for cardiac disorders.—(114) Burroughs Wellcome and Co. (Snow Hill-buildings, E.C.) as usual greeted visitors at the entrance with an attractive blue and white stand on which they displayed their wide range of products. They drew special attention to their ergot and digitalis products (Ergometrine, Ergotoxine Ethanesulphonate, Ernutin, Digoxin, and Diginutin); to the new Stypven Russell Viper Venom, issued in rubber-stoppered bottles together with hermetically sealed ampoules of solvent; Eulykol, representing a recent effort to reduce the pain and local reaction accompanying injection of hydnocarpus oil; vaccines and serological products of all kinds, including a gas-gangrene antitoxin advocated for acute intestinal obstruction; and a range of organotherapeutic and vitamin products, notably Ryzamin B, having a B_1 potency of at least 50 international units per gramme.

(1) G. W. Carnrick Co. (Brooks and Warburton Ltd., 232–240, Vauxhall Bridge-road, S.W.) assured visitors that their research and control laboratories maintain standardisation and potency consistent with the present development of scientific knowledge. They have added to their well-known Hormotone a new product, Hormotone T, combining 200 international units of ovarian follicular hormone, biologically standardised, with the regular Hormotone endocrine formula, thus making the oral administration of ovarian hormone available. They also showed their Incretone endocrine tonic; their Trypsogen tablets with physiologically inert coating; and their Colopo cholagogue and laxative.—(165) Thos. Christy and Co., Ltd. (4/12, Old Swan-lane, E.C.), had a number of interesting preparations on show. They market Estivin for hay-fever; Crepoplast non-

irritant elastic adhesive bandage; Gardner's syrup of hydriodic acid; Gorun ampoules and cachets for sciatica, lumbago, and arthritis; Nivea cream; Lysoform disinfectant and deodorant; and Musterole Brand mustard ointment.—(13, 14) Coates and Cooper Ltd. (94, Clerkenwell-road, E.C.1) displayed ethical medical and pharmaceutical preparations from the many foreign manufacturers whom they represent in this country, and offered to obtain from abroad any specialty unprocurable in England. Their wide range included Autacoids in aqueous solution; Apondon, a thyroid and ergocholin compound for reducing weight; Tonicine, male and female tonic; Cerocol colloidal cerium oxalates for the prevention of vomiting—including that associated with sea voyages; Hepferol, iron and liver in granules; Recresal phosphoric acid tonic for debility; Rossium, pyrazolon product of low toxicity, for alcoholism and drug addiction; and Validol, in pearls and liquid, which combines valerian with menthol.

(3) Continental Laboratories Ltd. (30, Marsham-street, S.W.1) had on view their popular Taxol, Detensyl, and Codoforme Botol. Their Crinex ovarian extract for oral administration and their Antipeol vaccine filtrate liquid are also well known.—(117, 118, 136, 138) Crookes Laboratories (Park Royal, N.W.10) particularly stressed the new Colsulanyde chemotherapeutic preparation for all streptococcal infections; it has no contra-indications, and the equivalent of a ¾ lb. dose for a man fails to kill mice; also Ferrofax compound of iron and vitamin B, with manganese, copper, and cobalt as catalysts. They also showed Estoform for asthma; their original colloidal preparations, many of which are now available in the form of capsules for the convenience of travellers; various preparations of halibut-liver oil now recommended for eye-work and as a non-irritating ointment for wounds; Collosol Brand Wheat Germ Oil for sterility and abortion; and Collosol Brand Phospho-Mandelate for urinary sterilisation; together with a useful and simple test outfit. They also mentioned that their Super-D Oil has been found beneficial for arthritis.

(97) J. C. Eno Ltd. (Pomeroy-street, S.E.) reminded visitors that their fruit salt owes some of its therapeutic efficiency to its careful preparation and high standard of purity; it is analysed at every stage of manufacture, and every trace of sugar, calcium, lead, sulphate of soda, and magnesium is meticulously excluded.—(149, 150, 160) Evans Sons Lescher and Webb Ltd. (56, Hanover-street, Liverpool) showed a great number of medical specialties, and particularly mentioned the modern facilities available at their biological institute for the manufacture and standardisation of antitoxins. They emphasised Zant, a potent, non-toxic germicide; Neo-Hepatex (Parenteral), a new potent standardised liver extract; Novasorb, a magnesium trisilicate preparation; Colliron, a non-irritant colloidal iron with a trace of copper; and Hepatex (Oral) liver and vitamin B compound.

(70) Fassett and Johnson Ltd. (86, Clerkenwell-road, E.C.) had a stand to ensure that doctors did not forget the value of their Antikamnia analgesic tablets with and without codeine; their Argyrol Silver Vitellin; their Eatan predigested beef preparation; their Ovoferrin Brand Colloidal Iron Tonic; their Zonite chloramine pessaries; and their Iobrine Anti-Rheumatic Seaweed Bath Salts.—(10, 11) Genatosan Ltd. (Loughborough) are already well known for their Sanatogen, Genasprin, Cystopurin, Formamint, and Detoxicated Vaccines. Their Fissan Brand Products represent an improved method of cutaneous application in the form of dusting powders, pastes, lotions, and ointments; the underlying idea is that the efficacy of the remedy depends on the physical state in which it is applied as well as on its chemical nature. They had a new oral vaccine in liquid form for colds and a new compound of calcium and aspirin, in tablets and powder.

(95, 96, 109) Glaxo Laboratories (Greenford, Middlesex) offered a complete range of preparations for calcium therapy, including tablets for oral use containing sufficient vitamin D to ensure absorption; a sterile suspension of colloidal calcium with pure Calciferol G.L. for subcutaneous injection; and Calcium Levulinate G.L., a stable assimilable injection for capillary permeability, hepatic insufficiency, and hæmorrhagic conditions. They also showed their well-known Syrup Minadex tonic, and Dissolved Vaccines G.L., which are so prepared that they can be given in full doses from the start without producing unfavourable reaction.—(121) C. J. Hewlett and Son, Ltd. (35/42, Charlotte-street, E.C.), had a number of their original preparations on view. Their range of Ampuliques contain single doses of sterilised injections of all kinds; and their Evapogens are medicated skin lotions which readily evaporate. Some of their mixtures, such as Heptagen, an aperient and cholagogue, Mist. Pepsinæ Co. c. Bismutho, Mist. Tussi Rub. Conc., and Somnigen, have been favourites for many years. They also supply a useful series of packed bags for the general practitioner and obstetrician.—(71) Hoffmann-La Roche Chemical Works Ltd. (51, Bowes-road, N.) showed a wide range of their analgesic, sedative, and hypnotic drugs, most of which have already proved their worth. Allonal, Saridone, Omnopon, Sedobrol, and Sedormid may be instanced. They also manufacture Larostidin for the histidine treatment of ulceration; Revitone tonic; Redoxon synthetic ascorbic acid in tablets and ampoules; and this year they introduce a new vitamin-B preparation, Benerva, in ampoules containing 500 international B units.

(45) Howards and Sons, Ltd. (Ilford), had on view a range of their fine chemicals which have now been made without interruption for 138 years. To introduce novelty in an old remedy, they now make aspirin tablets in six colours! They drew special attention to their Agotan for uric acid conditions; their Optochin Base, a synthetic derivative of quinine, for pneumonia; Quinisan for aborting influenza and colds; and Bismuth Carb. B.P., light and extra light.—(63) Johnson and Sons (Hendon, N.W.) presented their Estersil, a mixture of the ethyl and propyl esters of salicyl-glycollic acid for the relief of rheumatic infections.—(166) Kaylene Ltd. (Waterloo-road, N.W.) are familiar as the manufacturers of a highly colloidal form of kaolin and its combination with paraffin oil, charcoal, opaque substance, and formalin and menthol throat tablets. This year they introduced a new product, Magsorbent, a synthetic hydrated magnesium trisilicate for the treatment of ulceration, supplied in powder and tablets.—(119) Lactéol du Dr. Boucard (55, Welbeck-street, W.) have long been familiar to the medical profession: lactic ferments in tablets, powder, suppositories, ovules, ampoules, and dressings. Their Viatol is a vitamin tablet, and their Vaxa is a polymicrobic vaccine for oral administration.—(36) Eli Lilly and Co., Ltd. (2, 3, and 4, Dean-street, London, W.), showed their more outstanding pharmaceutical and biological specialties, including a 5 per cent. tannic acid jelly, Amertan; an oral respiratory vaccine, Entoral; their hypnotic, Amytal; their range of vaccine and serum preparations and "U.B.A." Undenatured Bacterial Antigens prepared according to A. P. Krueger's method; and several liver extract preparations.—(29) Wm. Martindale (12, New Cavendish-street, W.) showed Sterules Peptone in boxes of ten graded doses, for intramuscular injection; Novurit mercurial diuretic; E.S.T.P. ether soluble tar paste for eczema; Methyl Aspriodine liniment and balm; Sterules Tylcalsin for intravenous injection in sciatica and rheumatism; Iodo-Ray Sterules for intravenous and retrograde excretion urography; Calvitone calcium vitamin tonic; and many other interesting preparations.

(148) Menley and James Ltd. (64, Hatton-garden, E.C.) reminded visitors of the value of Iodex as an ointment, plain, or with methyl salicylate, in liquid form, pessaries, suppositories, and

collapsible bougies for ear, nose, and throat and gynæcological work; their Eskay Brand of neurophosphates; their Pentnucleotide mixture of the sodium salts; their Pyridium urinary antiseptic; and the Benzedrine inhaler, a volatile vasoconstrictor with greater potency than ephedrine. They also showed Benzedrine brand tablets, which stimulate the higher nervous centres and raise blood pressure.—(103) H. R. NAPP LTD. (3 and 4, Clement's Inn, W.C.) had on show a wide range of preparations, including the original gold preparation, Sanocrysin; Sedonan, for direct application to painful ears; Vegemucin, a combination of vegetable mucins without any alkali, for indigestion and ulcer; Raminal for high blood pressure; Fiatal and Sembol, organotherapy compounds for female and male dysfunction respectively; and Xorox, a powerful hæmotonic.—(120) OPPENHEIMER SON AND CO., LTD. (Handforth Laboratories, Clapham-road, S.W.), showed Alphidine, a non-toxic, non-irritant, readily assimilable iodine; Cholesal, a soluble granulated preparation of peptone and magnesium sulphate, for hepatic congestion, migraine, and nausea; Vasotone liver preparation for menopausal flushings; Iodised Balmosa ointment; Roboleine, their tonic food for infants; Vitad, vitamins A and D; Vical, a calcium lactate and Vitad preparation; and Iodovical, a compound of calcium lactate, Vitad, and Alphidine.—(80) ORGANON LABORATORIES (1, Gordon-square, W.C.) showed their gland and vitamin preparations which are prepared under the close supervision of specially experienced scientific advisers. Pregnyl is the gonadotropic hormone of pregnancy, used for menorrhagia, metrorrhagia, repeated abortion, dysmenorrhœa, and undescended or undeveloped testes. Ambinon is an anterior pituitary aqueous extract standardised for gonadotropic and thyrotropic factors, which can be used alone or combined with Pregnyl. Pernaemon Forte is a protein-free liver extract of high activity, for injection. Menformon is their œstrone preparation, and their Progestin is now prepared from whale corpora lutea. —(73) OXO LTD. (Thames House, Queen Street-place, E.C.) had on view preparations of liver, gastric tissue, and spleen.

(64) PARKE, DAVIS AND CO. (Beak-street, W.) had a comprehensive display of their products, old and new. Among those more recently introduced are: Abidon Capsules, concentrates of vitamins A, B, and D; 1 in 100 adrenaline chloride, introduced for deep oral inhalation in asthma; Antuitrin "Growth" and "S," the former from the anterior lobe and the latter from pregnancy urine; Gonoderm gonococcus soluble toxin Corbus-Ferry, a bouillon filtrate for intradermal injections; Meningococcus Antitoxin; Mapharside, a synthetic arsenic compound for syphilis; and Hebaral Sodium, a barbituric compound.—(75) PETROLAGAR LABORATORIES LTD. (Oldhill-street, N.) have added to their familiar and popular products, which include Endrine nasal compound and Neobovinine 20 compound of liver and beef hæmoglobin, a new variety of Petrolagar, Petrolagar with cascara, which manages to associate cascara with a new—non-bitter—flavour; and a new "mild" Endrine for children and those with sensitive mucosæ. They also showed Kaldrox Brand Adsorbent Compound, colloidal kaolin highly activated by dispersion in aluminium hydroxide gel.—(99) PHARMACEUTICAL SPECIALITIES (MAY AND BAKER) LTD. (Dagenham, London) chose this year to emphasise, from among their many specialties, anæsthetics and preparations for the treatment of venereal disease. Vinesthene (vinyl ether) is a new inhalation anæsthetic for short surgical procedures; Planocaine is a preparation of procaine in a variety of formulæ for local, regional, and spinal anæsthesia; and Scuroform is a butoform preparation for mucous surfaces and especially for dental work. Proseptasine is a colourless non-toxic preparation for streptococcal infections which does not stain the tissues; and Formadermine is a dusting powder.

(147) SANDOZ PRODUCTS (J. FLINT) (134, Wigmore-street, W.) were recommending their Femergin ergot preparation for its inhibitor action on the sympathetic nervous system in migraine, *tic douloureux*, and Graves' disease; Bellergal as a corrective for autonomic disturbances; Ipecopan Brand Dover's powder preparation; Optalidon analgesic; Sandoptal hypnotic; Panthesine local anæsthetic; Calcium-Sandoz for oral, intramuscular, or intravenous administration; and Allisatin tablets for the administration of allium sativum. Calcibronat is their new organic salt presenting the combined sedative and neuro-tonic properties of the bromine ion and calcium gluconate.—(27, 28) SAVORY AND MOORE LTD. (143, New Bond-street, W.) had a display of pharmaceutical preparations, many of which are already popular, as, for example, Datura Tatula for the relief of asthma and hay-fever by inhalation and smoking; Nembutal sedative; Metaphedrin Inhalant No. 99, and the A.B.D. vitamin capsules. Their preparation of peptonised cocoa and milk is a useful nightcap and a pleasant change from a milk diet, and their Fructole Carpinæ Co. is a palatable bromide preparation free from sugar. Haliver Malt with Irradiated Ergosterol yields as much vitamin A as cod-liver oil and as much B_1 and B_2 as compressed yeast, and in addition has more vitamin D than cod-liver oil and supplies calcium, phosphorus, liver, and malt extract.—(47) SCHERING LTD. (185–192, High Holborn, W.C.) displayed a comprehensive range of medicinal and X ray products, particularly Progynon for all conditions of ovarian hypofunction; Progynon B Oleosum for more severe cases; Proluton, a corpus luteum preparation; and Solganal B Oleosum for gold therapy. Old friends like Veramon and Medinal, Uroselectan B and Neotropin were also on view.—(163, 164) SHARP AND DOHME LTD. (Mulford Biological Laboratories) (76–78, City-road, London, E.C.1) showed the various vaccine and serological products of their laboratories, and stressed their new local vasoconstrictor Propadrin hydrochloride, non-toxic and without unpleasant side reactions.—(155) WILLIAM R. WARNER AND CO., LTD. (300, Gray's Inn-road, W.C.), introduced Veracolate tablets containing the essential bile salts with cascara, phenolphthalein, and capsicum. This preparation they have added to their well-known Agarol, Anusol suppositories, Veganin sedative, Alka-Zane effervescent salt, and Cal-Bis-Nate antacid.

(66) CHAS. ZIMMERMANN AND CO., LTD. (9–10, St. Mary-at-Hill, London, E.C.), showed Unibar (Röhm and Haas) opaque preparation for radiography of the alimentary tract; Nitrolingual (Pohl) capsules of nitroglycerin, ensuring rapid and direct reaction in the mouth; Norit Medicinal Carbon; Chinosol antiseptics; and Posterisan suppositories and ointment for hæmorrhoids.

DERBY ROYAL INFIRMARY.—The Duchess of Gloucester on Oct. 10th laid the foundation-stone of a £90,000 extension to this hospital. The foundation-stone of the present building was laid by Queen Victoria in 1891. Of the £90,000, the sum of £20,000 has been given by the family of the late Mr. S. Gee and £30,000 has still to be raised.

COMMONWEALTH FUND SERVICE FELLOWSHIPS.—The Commonwealth Fund of New York has established for British subjects a number of fellowships tenable at American universities, and it has been decided to offer not more than five of these fellowships during 1937 to men not over 35 holding appointments overseas under the British Government, the Government of India, or the government of a British dominion or colony. Candidates must submit a definite scheme of research work or advanced study, and special allowances will be made for equipment, tuition, and travelling, as well as a living allowance of $150 a month. The fellowships are tenable for from 15 to 24 months. The committee of award include Sir Walter Moberly, Sir James Irvine, F.R.S., Mr. E. A. Benians, Lord Halifax, Prof. A. V. Hill, F.R.S., and Prof. R. V. Southwell, F.R.S. Further information may be had from the secretary, 35, Portman-square, London, W.1, and all applications should reach him before Feb. 1st, 1937.

A CONFERENCE ON WATERS IN AUSTRIA

A MEETING of the International Society of Medical Hydrology, organised by Dr. E. Freund of Vienna, took place in Austria from Oct. 10th to 16th. The opening ceremony and first medical discussion were held in the faculty of medicine at Innsbruck on Sunday, the 11th, with a visit to Bad Hall in the afternoon; the party then proceeded by way of Zell-am-See, spending the afternoon at that lake-side resort, to Bad Gastein. There and at Hof Gastein more meetings were held and the party then travelled to Salzburg for the concluding meetings and an excursion up the Gaisberg. The presidential address by Prof. Alois Strasser was a closely reasoned plea for the biological orientation of research in medical hydrology; and the papers read at the meeting were well balanced between the scientific and clinical aspects of the subjects dealt with.

In the first discussion, on the spa treatment of disorders of old age, Sir Humphry Rolleston made a distinction, very useful in the subsequent discussion, between normal old age (or senescence), senility, and premature senility. Dozent Dr. Louis de Pap (Budapest) followed on the general subject of treatment, and Dr. Schneyer (Bad Gastein) on treatment by radio-active waters. A lively polyglot discussion took place in the evening, cut short only by dinner-time. At Bad Gastein the subject was radio-activity in medicinal waters, from various points of view. Drs. Pénkava and Bêhounek (Prague) dealt with the methods available for measuring radio-activity and with various hypotheses on which the action of radon on cell-tissue might be explained. Dr. O. Gerke (Bad Gastein) gave a review of the biological effects of such waters, experimentally produced and discovered, in plant and animal life and on human beings. A paper by Drs. Pierret (La Bourboule) and Stieffel (Plombières), presented by Dr. Rimey (Luxeuil), then dealt with the main aspects of their clinical action, showing the difficulty of isolating that of the radon from the chemical and thermal properties of the various waters in which it was present in larger quantities. Supplementary papers (not printed in advance) on experiments with radio-active mud and the Arneth-Schilling leucocyte count by Dr. Oedön Schulhof (Heviz), on revitalisation by Dr. P. H. Humphris, and on hormonal action, by Dr. F. Bravo (Chile), were read and discussed in the same connexion, and practical demonstrations were given in the new research laboratory by Dr. Granichstaedten and his assistants. The rest of the papers read were on subjects not chosen beforehand. The authors included Profs. Boehm and Gollwitzer-Meier (Germany), Scherbakow (Yugoslavia), Reichart (Czechoslovakia), while Dr. Kersley (Bath) gave a short paper and showed slides and a film illustrating the treatment of rheumatic cases. A striking feature of the medical discussions was the masterly summing up of the various prepared and spontaneous contributions (these last translated during the meeting) by the president.

The waters in Bad Gastein and Hof Gastein being laid on in the hotels, there was less to see than sometimes in the way of bath establishments. But visits to the point of emergence of the hot springs were made and the visitors were allowed to try the baths for themselves. There were participants from many European countries and from Australia, New Zealand, Japan, and Chile.

The papers read at the meeting will appear in full or summarised in the October and January (1937) numbers of the *Archives of Medical Hydrology.*

MEDICAL NEWS

University of Cambridge

On Oct. 16th the following degrees were conferred:—

M.D.—G. R. Ellis and L. R. W. Price.

M.B. and B.Chir.—G. J. H. Maud, H. B. Bagshaw, A. S. Till, and A. H. Zair.

M.B.—E. L. Cohen.

B.Chir.—J. F. Lown, A. B. MacEwan, and J. G. C. Spencer.

At recent examinations the following candidates were successful:—

D.M.R.E.

Part II.—V. R. Ginde, A. D. Versteegh, and J. B. Watson.

University of Sheffield

At the final examination for M.B., Ch.B., Parts II. and III., held recently, Marjorie I. Godson, F. C. Jackson, and J. L. Linacre were successful.

Royal College of Physicians of London

On Oct. 19th Sir Walter Langdon-Brown delivered the Harveian oration which is published on p. 961 of this issue. After the lecture Lord Dawson, as president, presented the Weber-Parkes medal to Sir StClair Thomson for his work on tuberculosis of the larynx and the Moxon gold medal to Dr. Edward Mellanby, F.R.S., for his work on the problems of nutrition.

The Buckston Browne Dinner

The annual dinner of fellows and members of the Royal College of Surgeons of England will be held at the College, Lincoln's Inn-fields, on Thursday, Nov. 12th, at 8 P.M. It was in July, 1927, that Mr. G. Buckston Browne, F.R.C.S. (now Sir Buckston Browne), gave to the College a sum of £5000 as an endowment to provide an annual dinner on the College premises for fellows and members of the College and such others as the president and council may wish to invite, at least half of the guests invited to be members of the College. This annual dinner has been held regularly since 1928, those present usually numbering about 100. This year will be shown after dinner films prepared by the late Dr. R. G. Canti, and in the museum there will be demonstrations by the College research workers.

University of Wales

At recent examinations for the diploma in public health (Part II.) Violet L. de A. Hickson, D. J. N. McNab, J. B. S. Morgan, W. E. Thomas, and J. T. Watkins were successful.

University of Glasgow

Sir Frederick Gardiner has given £10,000 to the university to supplement the same sum which was allocated from the estate of his brother, Mr. William Gardiner. The money will be devoted to establishing the Gardiner Medical Institute, which will give increased facilities for research and teaching in connexion with the regius professorship of the practice of medicine to which Dr. J. W. McNee was lately appointed.

Naval Medical Compassionate Fund

At the quarterly meeting of the directors of this fund, held on Oct. 9th, with Surgeon Vice-Admiral Sir Basil Hall, medical director-general of the navy, in the chair, the sum of £186 was distributed among the applicants.

British Science Guild

A dinner will be held at the Hyde Park Hotel, Knightsbridge, London, S.W., on Tuesday, Nov. 24th, at 8 P.M., when the president of the guild, Lord Melchett, will preside. A presentation from supporters of the guild will be made to Sir Richard Gregory, F.R.S., chairman of the council of management.

Committee against Malnutrition

The new Nutrition film of the Gas Light and Coke Company, which was described in our last issue (p. 927), will be shown at a public meeting organised by this committee in the Conway Hall, Red Lion-square, London, W.C., at 8 P.M., on Thursday, Nov. 5th. The chair will be taken by Mr. Harold Macmillan, M.P., and the speakers will include Dr. T. O. Garland, Dr. Janet Vaughan, and Dr. Maitland Radford. Tickets at 1s. and 6*d*. may be had from the committee, 19c, Eagle-street, Holborn, W.C.1.

THE King has given Dr. T. H. McLeod permission to wear the insignia of the fourth class (civil division) of the Order of Al Rafidain, which has been conferred upon him by the King of Iraq, in recognition of his valuable services as chief medical officer (Mosul Liwa) in the Iraq Civil Health Service.

Money for Scottish Hospitals

The trustees of the estate of the late Mr. W. L. Gardiner have made donations of £5000 each to Glasgow Western Infirmary and Stirling Royal Infirmary.

Royal Sanitary Institute

Lieut.-Colonel Gerald Leighton, formerly inspector of Army Food Contracts, will deliver the Benjamin Ward Richardson lecture at the institute, 90, Buckingham Palace-road, London, S.W., on Tuesday, Nov. 10th, at 5.30 P.M. The subject of the lecture will be the supervision of the nation's food-supply.

Royal Dental Hospital of London

School of Dental Surgery.—The twenty-seventh annual At Home of this school will be held on Saturday, Nov. 21st. The morning from 9.30 A.M. to 12.30 P.M. will be devoted to demonstrations at the in-patient department at Charing Cross Hospital and in the departments of the Royal Dental Hospital, where in the afternoon there will also be various exhibitions.

On the same evening, at 7 for 7.30 P.M., the dinner of past and present students of the hospital will be held at the Trocadero (Empire Rooms), when Mr. J. H. Badcock will preside.

Post-graduate Teaching in Glasgow

The Glasgow Post-Graduate Medical Association has arranged for a series of lectures and clinical demonstrations for practitioners to be given on Wednesday afternoons from Nov. 4th to May. 26th at 4.15 P.M. Special courses in ophthalmology, obstetrics, radium therapy, and diseases of the ear, nose, and throat will also be held during the session. The secretary may be addressed at 9, Woodside-terrace, Glasgow, C.3.

Course on Hospital Administration

A course of lectures and demonstrations on clinical practice and in hospital administration will be given at the North-Western Hospital, Lawn-road, London, N.W., by Dr. A. Joe on Mondays and Wednesdays at 10.45 A.M., and on alternate Saturdays at a time to be arranged. The course will begin on Jan. 13th and further information may be had from the medical officer of health, London County Council, Public Health Department (Special Hospitals), County Hall, S.E.1.

Lectures on Child Psychology

The women's committee of the National Institute of Industrial Psychology and the London Child Guidance Clinic have arranged a second series of lectures on this subject. On Monday, Nov. 2nd, Dr. William Moodie will speak on the problems of the ordinary child, and on Nov. 16th Dr. Elizabeth Sloan Chesser on the making of a happy human being. Mr. Alec Rodger will deliver the third lecture on Nov. 23rd, when he will speak on talents and temperaments. The lectures will be given at Carnegie House, 117, Piccadilly, W., at 3.15 P.M.

King's College Hospital

A meeting will be held at this hospital on Monday, Oct. 26th, when the hospital libraries will be on view. Mr. A. D. Power will describe the patients' library, Miss K. F. Armstrong the nurses' library, and Dr. A. Gilpin the library of the medical school.

The annual dinner of past and present students of this medical school will take place at 8 P.M. at the May Fair Hotel on Saturday, Oct. 24th. Particulars of the intensive post-graduate course, which is open to all practitioners and will be held on Oct. 24th and 25th, will be found in our Medical Diary.

The enlarged ear, nose, and throat department of the hospital is to be opened next Tuesday afternoon, Oct. 27th. Beforehand, at 3.30 P.M., Sir StClair Thomson will give an account of developments in the treatment of diseases of the ear, nose, and throat.

Albert Dock Hospital

This hospital has become unsafe owing to soil subsidence and is to be rebuilt on an adjoining site granted by the Port of London authority. The principal feature of the new hospital will be a fracture clinic and a residential rehabilitation centre.

Guildford Maternity Home

On Sept. 23rd Lady Jervis laid the foundation-stone of the new maternity home and nurses' hostel of the Guildford Queen's District Nursing Association. The old buildings are inadequate; the new will cost £16,000, about half of which has already been subscribed.

London Hospital Dinner

As chairman of the annual dinner at the Trocadero on Oct. 15th Mr. Russell Howard spoke of some of the great men of his 42 years at the London: Gowers, Openshaw, Mansell Moullin, Jeremiah McCarthy ("we used to think he knew all about surgery; and I'm not sure that he didn't"), Treves, Waren Tay, Hurry Fenwick, Eve, Herman and Lewers, F. J. Smith, Hughlings Jackson, and Henry Head. A striking difference between the present and the past was that the work formerly done by one member of the staff was now done by two, three, or four. "I am a landmark," said Mr. Howard; for the general surgeon was disappearing and specialism had come to stay. "At the London," he continued, "our young men have much more work to do than in other hospitals. . . . We insist on our men becoming general surgeons before they become specialists." The consequences were unfortunate, for when a staff vacancy came to be filled, and need arose for someone with specialist knowledge to fill it, the appointment often had to go to a man from another school. It was essential that London men should be able to get more specialist experience. Lord Knutsford had built up the hospital for the care of the sick poor; but the sick poor were nowadays catered for elsewhere, and the London must go beyond that. To have more specialists there must be a larger staff, and more ancillary workers. If the young men were to do any good they must have more leisure, and opportunities to go abroad: "give them a chance and there will be no more need to go outside the London." Last year, even with selection, there was a record entry; and the student of to-day was just as ardent and argumentative and unformed as ever. Prof. William Wright, proposing the chairman's health, described him as one of the last of the great general surgeons and a great teacher. The secret of his power was that he tried to instil into his dressers ideas of accuracy and precision: nothing might be "here or there," or "more or less." Like Kipling's sergeants, he took great care that they washed behind their ears; and this, said Prof. Wright, was the very kernel of medical education.

Though Mr. Howard expressly announced that this evening was by no means the proudest occasion of his life, it might well have been, for he was left in no doubt of the opinion of old Londoners about his work. This having been made clear, there were no more speeches and everyone settled down quietly to the old sport of pretending to remember everyone else's name. It became easier after midnight.

Chelsea Clinical Society

On Tuesday last, at the Rembrandt Hotel, Mr. Andrew Rugg-Gunn presided over this society's annual dinner. The principal guest was Sir Arnold Wilson, M.P., who said that as chairman of the Industrial Health Research Board he had found doctors in closer touch with current affairs than were lawyers, churchmen, or educationists. The medical profession, however, must stand back and look at things objectively. The voluntary hospital system had now become a positive incubus, while National Health Insurance, with its chance allocation of additional benefits, left so many gaps that the country was losing at least half the advantages of a decent health service. Doctors were expected to treat the wrong diseases in the wrong places in the wrong manner, and there was widespread dissatisfaction with the manner in which specialist appointments were made by laymen. Facilities for post-graduate work must be improved, and the medical student must be selected more carefully and subjected to less cramming. Close orders, such as professions, were apt to become more obstructive to reform than outsiders, and the time had come for doctors to make a forward move on their own lines before change came from elsewhere. At present we had no Ministry of Health, but only the old Local Government Board under another name. There would be no progress till the profession took up the task of managing its own affairs, as in Germany, arranging full scope for talents and security for needs. The president, turning to even larger problems, suggested that Home Rule for England would allow the other British nationalities to get on with the bigger tasks of government. He prophesied grimly that Gaelic might yet become the final language of civilisation in these islands. Meanwhile the Chelsea Clinical Society, with its happy association of specialists and practitioners, remained the last stronghold of the male and preserved a broad and humanitarian view of medicine. Mr. Lawrence Abel proposed The Guests, who included the Norwegian Minister, in a speech containing a record number of good stories per minute. Sir John Parsons, F.R.S., as president of the Royal Society of Medicine, assured the smaller societies of its goodwill, and Commander F. N. Stagg delivered an eloquent appreciation of the Scandinavian element in British and European breeding and culture.

Gifts from Lord Nuffield

Lord Nuffield has offered to contribute £80,000 to the £500,000 appeal which has been launched by Guy's Hospital. The gift, which is a conditional one, redeemable only when the remaining £420,000 has been collected, will be devoted to the necessary extensions to the nurses' home. Lord Nuffield has also presented £30,000 to the Acland Nursing Home at Oxford which was founded nearly sixty years ago in honour of Sir Henry Acland. The money will be used to extend the accommodation of the home and install new equipment. On another page appears an announcement of a gift towards the production of talking books for the blind.

Medical Diary

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, Oct. 26th.

Odontology. 8 P.M. Mr. W. Warwick James: The Failure of Teeth and the Future. (Presidential Address.) Mr. M. A. Rushton and Mr. F. A. Walker: Unilateral Secondary Facial Cleft with Excess Tooth and Bone Formation.

TUESDAY.

Medicine. 5 P.M. Dr. Maurer: The Treatment of Pleural Effusions. Dr. Burton Wood and Dr. Geoffrey Marshall will also speak.

WEDNESDAY.

Comparative Medicine. 5 P.M. Major G. W. Dunkin: Para-tuberculosis of Cattle and Sheep. (Presidential Address.)

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, W.

MONDAY, Oct. 26th.—8.30 P.M., Dr. Malcolm Donaldson: Carcinoma of the Cervix.

BRITISH PSYCHOLOGICAL SOCIETY.

Medical a [illegible]

WEDNESDAY [illegible] r. J. S. Barwell and Dr. [illegible] re of Ugliness.

SOUTH-WEST [illegible] ETY.

MONDAY, Oc [illegible] Hospital, Wandsworth C [illegible] s, F.R.S.: Headache—Mistakes in Diagnosis.

SOCIETY OF MEDICAL OFFICERS OF HEALTH, 1, Thornhaugh-street, W.C.

FRIDAY, Oct. 30th.—5 P.M., Dr. Ernest Ward: Tuberculosis. (Presidential Address.)

ASSOCIATION OF INDUSTRIAL MEDICAL OFFICERS.

FRIDAY, Oct. 30th.—5 P.M. (London School of Hygiene, Keppel-street, W.C.), Business Meeting. 6 P.M., Dr. H. E. Collier: The Education of Medical Practitioners for Industry. Dr. G. P. Crowden: Post-graduate Training in the Practice of Preventive Medicine in Industry.

SATURDAY.—10 A.M., Visit to General Post Office, St. Martin's-le-Grand, E.C.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS, Lincoln's Inn-fields, W.C.

MONDAY, Oct. 26th.—5 P.M., Dr. L. W. Proger: Intestinal Diseases.

FRIDAY.—5 P.M., Dr. A. J. E. Cave: The Inguinal Canal and its Herniæ.

CHADWICK LECTURE.

TUESDAY, Oct. 27th.—8.15 P.M. (Manson House, 26, Portland-place, W.), Mr. Eardley Holland: Perils of Parturition to the Child—Their Nature and Prevention.

INSTITUTE OF HYGIENE, 28, Portland-place, W.

WEDNESDAY, Oct. 28th.—3.30 P.M., Prof. V. H. Mottram: Diet in Winter.

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane-road, W.

MONDAY, Oct. 26th.—2.15 P.M., Dr. Duncan White: Radiological Demonstration.

TUESDAY.—2 P.M., Prof. Kettle, F.R.S.: Pathological Demonstration. 4.30 P.M., Dr. H. Yellowlees: Psychological Medicine.

WEDNESDAY.—Noon, clinical and pathological conference (medical). 2.30 P.M., clinical and pathological conference (surgical). 4.30 P.M., Mr. J. E. Barnard, F.R.S.: Microscopy.

THURSDAY.—2.15 P.M., operative obstetrics. 3.30 P.M., Dr. W. H. F. Oxley: Obstetric Emergencies.

FRIDAY.—2.15 P.M., Department of Gynæcology: Pathological Demonstration. 2.30 P.M., Mr. G. Jefferson: Surgery of Nervous System.

Daily, 10 A.M. to 4 P.M., medical clinics, surgical clinics or operations, gynæcological clinics or operations, refresher course for general practitioners.

INSTITUTE OF MEDICAL PSYCHOLOGY, Malet-place, W.C.

MONDAY, Oct. 26th.—3 P.M., Dr. J. A. Hadfield: Mental Mechanism. 4.30 P.M., Dr. Maurice Wright: Principles of Psycho-analysis (Freud). 5.45 P.M., Dr. E. B. Strauss: Case-histories—(1) Anxiety States.

THURSDAY.—3 P.M., Prof. Millais Culpin: Anxiety States. 4.30 P.M., Dr. James Kirsch: Analytical Psychology (Jung). 5.45 P.M., Dr. E. B. Strauss: Case-histories—(2) Conversion Hysteria.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.

MONDAY, Oct. 26th.—10 A.M., skin clinic. 11 A.M., surgical wards. 2 P.M., operations, surgical and gynæcological wards, medical, surgical, and gynæcological clinics.

TUESDAY.—10 A.M., medical wards. 11 A.M., surgical wards. 2 P.M., operations, medical, surgical, and throat clinics.

WEDNESDAY.—10 A.M., children's ward and clinic. 11 A.M., medical wards. 2 P.M., gynæcological operations, medical, surgical, and eye clinics. 4.15 P.M., Mr Harvey Jackson: Accessory Methods of Localisation of Brain Tumours.

THURSDAY.—10 A.M., neurological and gynæcological clinics. Noon, fracture clinic. 2 P.M., operations, medical, surgical, genito-urinary, and eye clinics. 4.15 P.M., venereal diseases.

FRIDAY.—10 A.M., medical wards, skin clinic. Noon, lecture on treatment. 2 P.M., operations, medical, surgical, and throat clinics. 4.15 P.M., Dr. Hugh Gordon: Psychological Aspects of Dermatology.

SATURDAY.—10 A.M., children's and surgical clinics. 11 A.M., medical wards.

The lectures at 4.15 P.M. are open to all medical practitioners without fee.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Oct. 26th, to SATURDAY, Oct. 31st.—ST. JOHN'S HOSPITAL, 5, Lisle-street, Leicester-square, W.C. afternoon course in dermatology.—CHELSEA HOSPITAL FOR WOMEN, Arthur-street, S.W., all-day course in gynæcology.

KING'S COLLEGE HOSPITAL.

SATURDAY, Oct. 24th.—11 A.M., Dr. Clayton and Dr. Cooksey: Physical Treatment of Fibrositis. Noon, Dr. Davies: Diagnosis and X Rays with Demonstration Films. 2 P.M., clinical cases will be demonstrated, includin [illegible] and dermatological cases. 3.3 [illegible] of cardiological cases by sound [illegible] .M., discussion on ductless glan [illegible]

SUNDAY.—10.30 A.M., [illegible] New Drugs and Therapeutic Remedies. 11.15 A.M., Dr. W. Sheldon: [illegible] n. Noon, Mr. Wakeley: [illegible] ision.

Oper [illegible]

HOSPIT [illegible] Great Ormond-street, W.C.

WEDNESDAY, Oct. 28th.—2 P.M., Dr. B. E. Schlesinger: Artificial Feeding in Infancy. 3 P.M., Dr. A. Signy: Blood-grouping and Methods of Transfusion.

Out-patient clinics daily at 10 A.M. and ward visits at 2 P.M.

LONDON SCHOOL OF DERMATOLOGY, 5, Lisle-street, W.C.

TUESDAY, Oct. 27th.—5 P.M., Dr. J. E. M. Wigley: Tuberculosis Cutis.

THURSDAY.—5 P.M., Dr. A. M. H. Gray: The Sarcoids and Lupus Pernio. (Chesterfield Lectures.)

NATIONAL HOSPITAL, Queen-square, W.C.

MONDAY, Oct. 26th.—3.30 P.M., Dr. Kinnier Wilson: The Motor System.

TUESDAY.—3.30 P.M., Mr. Sydney Scott: Auditory and Vestibular Nerves.

WEDNESDAY.—3.30 P.M., Dr. Kinnier Wilson: Clinical Demonstration.

THURSDAY.—3.30 P.M., Dr. Gordon Holmes, F.R.S.: The Sensory System.

FRIDAY.—3.30 P.M., Dr. Bernard Hart: Psychopathology (IV.).

Out-patient clinic daily at 2 P.M.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL, N.W.

WEDNESDAY, Oct. 28th.—4 P.M., Mr. A. J. Gardham: Treatment and Prognosis of Some Common Fractures in the Upper Limb.

ST. PAUL'S HOSPITAL, Endell-street, W.C.
WEDNESDAY, Oct. 28th.—4.30 P.M., Mr. Jocelyn Swan: Tumours of the Bladder.

ST. MARY'S HOSPITAL, W.
THURSDAY, Oct. 29th.—5 P.M., Dr. G. O. Barber: National Health Insurance (General Practice IV.).

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James's Hospital, Balham.
WEDNESDAY, Oct. 28th.—4 P.M., Dr. Norman Haire: Birth Control Methods.

LEEDS GENERAL INFIRMARY.
TUESDAY, Oct. 27th.—3.30 P.M., Mr. Flint: Demonstration of Surgical Cases.

LEEDS PUBLIC DISPENSARY AND HOSPITAL.
WEDNESDAY, Oct. 28th.—4 P.M., Dr. H. G. Garland: Demonstration of Neurological Cases.

MANCHESTER ROYAL INFIRMARY.
TUESDAY, Oct. 27th.—4.15 P.M., Mr. R. L. Newell: Minor Surgery of the Rectum.
FRIDAY.—4.15 P.M., Mr. H. H. Rayner: Demonstration of Surgical Cases.

ANCOATS HOSPITAL, Manchester.
THURSDAY, Oct. 29th.—4.15 P.M., Dr. R. Ellis: Albuminuria.

Appointments

MINSKI, LOUIS, M.D. Durh., M.R.C.P. Lond., D.P.M., has been appointed Deputy Medical Superintendent, Ewell Mental Hospital, Epsom.

Aberdeen Royal Infirmary.—The following appointments are announced:—

MACKWORTH, ELIOT, M.B. Aberd., Medical Registrar;
TOUGH, J. SCOTT, M.B. Edin., Senior Casualty Officer; and
FULLERTON, H. W., M.B. Aberd., Clinical Tutor.

Charing Cross Hospital.—The following appointments are announced:—

MCGINN, J. T., M.B. Dub., Diagnostic Clinical Assistant to the Radiological Department;
EBAN, I., M.B. Belf., Therapeutic Clinical Assistant to the Radiological Department; and
WALLIS, S. D., M.R.C.S. Eng., D.O.M.S., Clinical Assistant to the Ophthalmic Department.

Duchess of York Hospital for Babies, Manchester.—The following appointments are announced:—

KILNER, T. POMFRET, M.B. Manch., F.R.C.S. Eng., Hon. Consulting Plastic Surgeon;
BENTLEY, F. H., M.B. Manch., F.R.C.S. Eng., Hon. Visiting Plastic Surgeon;
DUTHIE, O. M., M.D. Manch., Hon. Ophthalmologist;
NICHOLSON, J. C., M.B. Manch., D.A., Assistant Hon. Anæsthetist; and
ASHER, CECILE, M.D. Lond., Registrar.

Vacancies

For further information refer to the advertisement columns

Alton, Hampshire, Lord Mayor Treloar Cripples' Hospital.—Third Asst. Res. M.O., at rate of £150.
Bath Royal United Hospital.—Res. O., £150.
Bath and Wessex Children's Orthopædic Hospital, Combe Park.—H.S., at rate of £120.
Battersea General Hospital, S.W.—Hon. Medical Staff.
Birkenhead Municipal Hospital.—Sen. Res. M.O., £350.
Birmingham, Canwell Hall Babies' Hospital.—Res. M.O., at rate of £250.
Bolingbroke Hospital, Wandsworth Common, S.W.—H.S., at rate of £120.
Brighton, Sussex Eye Hospital, Eastern-road.—H.S., at rate of £150.
Bristol, Frenchay Park Children's Orthopædic Hospital, &c.—Res. M.O., £250.
Burnley Victoria Hospital.—H.P., at rate of £150.
Burton-on-Trent General Infirmary.—H.P. and Cas. O., £150.
Central London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C.—Hon. Third Asst. to Out-patient Dept.
Chester, Barrowmore Tuberculosis Sanatorium, &c., Great Barrow.—H.P., at rate of £150.
Colonial Medical Service.—M.O.'s.
Croydon County Borough.—Asst. M.O.H. for Obstetrics, £750.
Dingwall, Lewis Sanatorium and Infectious Diseases Hospital.—Res. M.O., at rate of £250.
Dorchester, Dorset C nty Hospital.—H.S., at rate of £150.
—H.S., £130.
; Hospital, Pevensey-road.—H.S., £100.
'. Vincent's Orthopædic Hospital.—Regis-
Hospital, Shrewsbury-road, E.—Hon.
Hospital, Colinton Mains.—Med. Supt., £150.
Edmonton, North Middlesex County Hospital.—Jun. Res. Asst. M.O., at rate of £250.
Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—Hon. Ophth. Surgeon.
General Lying-in Hospital, York-road, Lambeth, S.E.—M.O. for Infant Welfare Centre. Also Jun. Res. M.O., at rate of £100.
Glasgow University.—St. Mungo (Notman) Chair of Pathology.
Guildford, Royal Surrey County Hospital.—H.S., £150.
Harrogate Royal Bath Hospital.—Res. M.O., £156.
Hastings, Royal East Sussex Hospital.—Sen. H.S., at rate of £200.
Heston and Isleworth Borough.—Sen. Asst. M.O.H. and School M.O., £600.
Hove General Hospital.—Hon. Surgeon. Also Res. M.O., at rate of £200.
Ilford, King George Hospital.—H.S., at rate of £100.
Larbert, Stirling District Mental Hospital.—Jun. Asst. M.O., £300.
Lincoln County Hospital.—Jun. H.S., £150–£200.
London County Council.—Two Res. Med. Supts., each £950. Asst. M.O.'s, Grade 1, each £350. H.P.'s, each at rate of £120. Also Part-time M.O., at rate of £40.
London Hospital, E.—Med. First Asst. and Reg., £300.
London Lock Hospital, 283, Harrow-road, W.—Surg. Reg. to Female Lock Hospital, £100.
Loughboroug' chool M.O., £800.
Manchester, *ital.*—Med. Supt., £1100.
Manchester, —Res. Obstet. O., £400.
Manchester Royal Children's Hospital, Pendlebury.—Res Surg. O., at rate of £125.
Margaret-street Hospital for Diseases of the Chest, W.—Hon. Asst. Physician.
Middlesex County Council.—Ophthalmic Surgeon, £2 12s. 6d. per session.
Middlesex Hospital Medical School, W.—Asst. Physicist, £300.
National Hospital for Diseases of the Nervous System, Queen-square, W.C.—Asst. Aural Surgeon.
Nottingham City Hospital.—Res. Surg. O., £350.
Portsmouth Royal Hospital.—Cas. O., at rate of £130.
Preston and County of Lancaster Royal Infirmary.—Bacteriologist ns. per week.
Romford, un. Res. M.O., £250.
Royal Air —Commissions.
Royal Free Hospital, Gray's Inn-road, W.C.—Hon. Asst. Dental Surgeon.
Royal London Ophthalmic Hospital, City-road, E.C.—Pathologist and Curator, £200. Also two Out-patient Officers, each £100.
Royal Naval Medical Service.—M.O.'s.
St. George's Hospital, S.W.—Obstet. Reg. and Tutor, £90.
Sheffield Children's Hospital.—H.S., at rate of £100.
Sheffield, Lodge Moor Infectious Diseases Hospital.—Jun. Asst. M.O., £200.
Stockport County Borough.—Asst. M.O.H., £500.
Torquay, Torbay Hospital.—H.S., at rate of £175.
Wakefield Mental Hospital.—Asst. M.O., £350.
Walsall General Hospital.—Hon. Asst. Surgeon to Ear, Nose, and Throat Dept.
Westminster Hospital, Broad Sanctuary, S.W.—Surgeon.
West Riding of Yorkshire County Council.—Two Asst. Tuber. O.'s, each £500.

Under the Workmen's Compensation Act, 1925, the Home Secretary will appoint an Ophthalmic Specialist Medical Referee for County Court Districts in Monmouthshire and Glamorgan. Applications should reach the private secretary, Home Office, Whitehall, London, S.W.1, before Nov. 5th.

The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Edenbridge (Kent) and Highworth (Wilts).

Births, Marriages, and Deaths

BIRTHS

CHADWICK.—On Oct. 13th, the wife of Dr. N. E. Chadwick, Hove, of a daughter.

GRAVES.—On Oct. 16th, at Chester, the wife of Dr. Philip R. Graves, of a daughter.

MALONE.—On Oct. 10th, at West Dulwich, S.E., the wife of Dr. W. Malone, of a son.

PARKER.—On Oct. 14th, at Sandgate, Kent, the wife of Dr. F. Gerald Parker, of a daughter.

RYDER-LEWIS.—On Oct. 12th, at Ladbroke-gardens, W., the wife of Dr. Arthur Ryder-Lewis, of a son.

TOMES.—On Oct. 13th, at East Dulwich, S.E., the wife of Cyril Tomes, L.D.S. R.C.S. Eng., of a daughter.

TUPLING.—On Oct. 17th, at Guy's Hospital, the wife of Dr. Parker Tupling, of twin daughters.

MARRIAGES

LAWRENCE-SMITH—GOUGH-FOXWELL.—On Oct. 10th, at the Church of St. Ambrose, Gosport, Surg. Lt.-Comdr. Alexander Maxwell Lawrence-Smith, R.N., to Millicent, daughter of the late Mr. and Mrs. H. Gough-Foxwell, of Newport, Mon.

DEATHS

APPLEYARD.—On Oct. 14th, at 7, Spring Bank-place, Bradford, Lilian Alice (Lilla), dearly loved wife of William Appleyard, F.R.C.S.

BOURKE.—On Oct. 13th, at Windsor Hotel, Lancaster-gate, W., Lt.-Col. Ulick Joseph Bourke, L.R.C.S. Irel., R.A.M.C. (retd.).

DAVIS.—On Oct. 15th, at La Fantaisie, Jersey, Lt.-Col. Edward Davis, M.R.C.S. Eng., R.A.M.C. (retd.), in his 78th year.

FAUSSET.—On Oct. 10th, at Hopwas, near Tamworth, Herbert John Fausset, V.D., M.D. Dub., aged 90.

HENRY.—On Oct. 18th, at Beckenham, William Francklin Henry, L.D.S. Eng., late of King William-street, E.C., aged 93.

HIBBERD.—On Oct. 14th, at Mount Ararat-road, Richmond, Edward Hibberd, M.D. St. And.

STEIL.—On Oct. 11th, at Glebe Court, Southampton, J. W. Hancock Steil, M.B. Glasg., Hon. Squadron Leader, R.A.F., aged 73.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

NOTES, COMMENTS, AND ABSTRACTS

WILLIAM GOODORUS: SERJEANT SURGEON

By R. R. James

THE fifth name upon the roll of those members of the Barber-Surgeons' Company who have served the office of Serjeant Surgeon is that of William Goodorus. Admitted to the Freedom in 1576, he was elected Warden in 1589 and in 1592. In the latter year he is noted as Serjeant Surgeon, so he must have been promoted to this office after the death of Serjeant Robert Balthrop which occurred in December, 1591. Goodorus was thus Serjeant Surgeon to Queen Elizabeth, and on the accession of James the First he continued in office. He was Master of the Company in 1594 and again in 1603. His years as Master were fairly uneventful save for the death of Queen Elizabeth in 1603. James tried to borrow money from the Company in 1603, but they replied that they had none. Some other notes about Goodorus will be found in Young's Annals: thus, in 1610 when the Court sent round the hat "to thentent to bringe the howse out of debt," most of the members expressed their willingness to contribute, but "Mr. Serjaunt Goodorus," with some other thrifty souls, would only promise "to thinck of itt."

Three years before this Goodorus had been appointed an examiner in surgery by the Company. He benefited under the will of Robert Balthrop, who bequeathed "to my felowe Goodorus one of my launcettes that is sett in golde and enamyled." In the lengthy schedule of effects annexed to Balthrop's will is a note of some instruments and books to be given to his apprentice, John Edwards. Among these occurs Eliot's Dictionary "which I have lent to my felowe Goodorus."

From the account of William Clowes in the Annals we learn that Goodorus went as surgeon to the forces in the expedition to the Low Countries, under the Earl of Leicester, in 1585. Clowes, in "Proved Practice," says that many of the surgeons were most unskilful and slew more than the enemy did, though he and his friend Goodorus did not lose a case.

Goodorus died in December, 1613. His will (P.C.C. Capell, 20) was signed on December the First and proved on the Fourteenth. For the following abstract of it I am indebted to my friend Mr. Harvey Bloom.

"Will$^{m.}$ Goodorus Esq. Serjeant Chirurgeon to the King's most excellent Ma$^{tie.}$ *Soule to Allmightie God.* Body to the earth, to be buried in the parish church of Eastgreenwiche as neere the body of my late wief deceased as conveniently may be. To Sister-in-lawe Mary, the wief of Thomas Thorne, gardiner, a messuage to dwell in for lief and 40*s*. To Johanne Cooke, 40*s*. To the poor of Eastgreenwiche, 40*s*., to be distributed amongst them in breade on the day of my funeralle. To Dudley Goodorus, my sonne, my messuage neare the high bridge in Eastgreenwiche, to him and his heirs, immediately after the death of FFrauncis Answorth, my daughter, and a parcel of land known as the "*new forest*" neere Stratford Langthorne Co. Essex. To Johanne, wief of my said sonne, £20, and to his children, Dudley, William and Elizabeth, £5 each. Residuary legatee and executor, said sonne. Overseers. Hugh Hall, of London, Esq., Robert Frankes, of Eastgreenwiche, Esq., William Bradley of Thaidon bois, Co. Essex, yeoman. Witnesses, W$^{m.}$ Whitehead, Ra. Briscoe, Ed$^{md.}$ Salt, Scrivenor.

Son Dudley took up his Freedom of the Company in 1604 and on July 1st, 1606, was fined for absence at lectures, but the fine was "mitigated" to Xiid. In the year 1597 another son, Robert, was admitted into the Freedom by patrimony. On July 8th, 1606, the Court minutes state that Robert Goodorus hath done no service at all for the space of theis fower yeares last past in his livery. The Court decided that his father should be spoken to before settling the amount of the fine; but so far as my researches at Barbers' Hall have gone the amount was never settled. I think it possible that the remissness was due to ill health and that Robert may have died soon afterwards as there is no mention of him in his father's will.

BOOKS FOR THE BLIND

LAST year the National Institute for the Blind had at its disposal a sum of more than £200,000, of which £171,000 was contributed voluntarily by the general public. This made it possible to increase the number of embossed books, newspapers, and magazines for the blind in Braille or Moon type in spite of the fact that their production is very expensive. Many of the best sellers in fiction are now available to the blind as well as the works of authors such as Eddington, Jeans, and Keith. During the year over 15,000 bound volumes of Braille and over 17,000 Braille pamphlets were produced largely by the labour of blind workers themselves. Nearly half a million Braille newspapers were circulated and about half as many Braille magazines. There is a Braille edition of the *Radio Times* with a circulation of 3000 a week, but the blind are already asking for a bi-weekly newspaper which the Institute promises to initiate when sufficient funds are forthcoming. Braille literature is sold to the blind at one-third its cost price besides being available to them in their libraries. For blind students the Institute has established a lending library in which, besides standard books in Braille, there are a number of manuscript volumes—Braille copies of books sometimes asked for but not in general demand. These are the output of about 150 voluntary sighted workers, men and women themselves experts in Braille, who have this year between them transcribed as many as 975 large volumes—an example, as the report aptly remarks, of the finest form of voluntary service. There is also a manuscript music library for the use of blind musicians. A special committee has gone a good way towards making Sir Ian Fraser's ingenious idea of "talking books" available for the blind. People with good broadcasting voices have given their services freely and there are gramophone records of standard works and popular fiction, of which the library at present consists of 376 books and the committee have supplied 369 machines. Talking books are now being dispatched to borrowers at the rate of fifty a week. This new development was made possible by a gift from Lord Nuffield of £5000 for the purpose, and it was announced last Saturday that the same amount will be available for each of the next seven years. A gift of £500 a year for three years has also been made by the Carnegie trustees. It may be recalled that a talking book consists of ten or twelve 12-inch gramophone records, each side of which reads for 25 minutes. The execution of this beneficent scheme is probably the greatest boon conferred on the blind in our time.

RHEUMATISM CAUSED BY DRUGS

RHEUMATISM following chemotherapy was the subject of an analytical survey in the *Presse Médicale* for June 27th by Tzanck, Layani, Sidi, and Klotz. In a thesis published in 1935, Madame Le Roy des Barres found 215 cases of this kind among 12,076 treated at the Fracastor dispensary of the Broca Hospital. Such chemical rheumatism seems to be almost confined to adults between the ages of 20 and 40, and to be more common in women than in men in the ratio of three to one. "Chemical rheumatism" may develop at any time in the course of a series of injections, and is apparently independent of the dosage of the drug. The interval between an injection and the development of articular pains may be as long as two or three days, but as a rule it is a matter of only three or four hours or even less; indeed, in some cases the injection has hardly been completed when the patient begins to complain of lively pain in the joints. Any and every drug, it is stated, may under favourable conditions induce chemical rheumatism; not only bismuth, arsenic, mercury, and gold, but also the barbiturates, bromides, chloral, quinine, and Atophan may provoke it. The same drug may induce different rheumatic reactions in different patients, and conversely several drugs may give rise to the same clinical picture of chemical rheumatism, a characteristic feature of which is the absence of suppuration. The fact that some patients can go on taking the peccant drug with impunity after it has apparently provoked an attack of violent rheumatism may arouse doubts about the part it really plays in causation. The authors of the present study are inclined to regard the condition as a vasomotor disturbance involving the bony tissues.

A GREAT FURTHERER OF LEARNING

THE present generation has taken much to heart the injunction to commemorate "our pious founders": and a volume on Hugh Oldham by Dr. Mumford[1] illustrates the ardour and persistence with which slight clues are pursued in order to bring to light the intentions and motives of the men who centuries ago had vision and foresight in their endeavour to benefit future generations.

Hugh Oldham, to whose munificence and enthusiasm for learning Manchester Grammar School owes its origin, was one of a large family, various members of which can be traced in the thirteenth, fourteenth, and fifteenth centuries. The family came originally from Oldham, in the south-east corner of Lancashire, but in the fifteenth century appears to have been firmly established in Manchester, which was then rising into prominence as a trading centre, and it was on Manchester that Hugh Oldham's benefactions were bestowed, when he had attained place, power, and wealth as Bishop of Exeter. He was not, according to one of his later biographers, learned, but "a great furtherer of learning." Manchester was not the only beneficiary of his enthusiasm: Durham College at Oxford, the precursor of the present Trinity College, where he may possibly have resided during his stay at Oxford, Corpus Christi, and Brasenose were among the recipients of his bounties. There is a story, quoted briefly by Dr. Mumford, that he had at one time the intention to do much for Exeter College in the same university, but for some unknown reason altered his plans. It is curious that all his benefactions were to Oxford, for though he originally studied there, he migrated to Cambridge to take his degree in civil and canon law.

Hugh Oldham was an example of the type of ecclesiastic who in the fifteenth century and earlier rose to a high position in the Church, not from any eminence in theological learning, or any outstanding merit as a priest or preacher. He appears to have spent nearly all his earlier life, until 1493, in what we regard as civil employment, largely concerned with legal matters and the management of the affairs of The Lady Margaret of Richmond, the mother of Henry the Seventh, and the generous benefactress of both Cambridge and Oxford, though in her case the bulk of her gifts went to Cambridge, possibly as Dr. Mumford suggests owing to the influence of John Fisher her friend and confessor. In her will she left Hugh Oldham a not inconsiderable legacy and the evidence of the legal documents which Dr. Mumford has studied so exhaustively shows that she had relied largely on his skill and legal training in the 20 years before her death in 1509. She had besides seen to his advancement and his first real ecclesiastical preferment to the Archdeaconry of Exeter was, Dr. Mumford thinks, probably due to her influence. "The first real ecclesiastical preferment" for though he had held, after the fashion of the time, numerous livings, prebendal stalls, and canonries, there is no evidence that he did more than draw the stipends and was probably never a resident in any of his benefices. When however he became archdeacon he at once began work in the diocese, and though he still continued to advise and act as agent for The Lady Margaret he threw himself into the many reforms which the diocese of Exeter so sorely needed. He was twelve years archdeacon, and then, again on the "representation of the Lady Margaret," was made Bishop of Exeter. It was after he had been twelve years bishop and seven years after the death of his patroness that he visited Manchester and completed the arrangements for the establishment and endowment of his chief monument, the Grammar School.

Dr. Mumford has made a pleasant story of Hugh Oldham's life, and though there is but little direct material, at any rate before he went to Exeter, he has so thoroughly explored all the documents likely to throw any light on the earlier years that he has succeeded in presenting a picture of Oldham's career which illustrates the life of a successful man of affairs in Tudor times. In our day he would have been an honoured and successful civil servant, but it is unlikely that he would either have acquired the wealth or the stimulus to serve future generations, had he not risen to eminence in a Church which for another half-century offered the highest rewards to talent and industry.

BRAZILIAN WORK ON LEPROSY

ON Sept. 19th we reviewed an issue of the *Indian Medical Journal* that had been specially devoted to leprosy, and it may be of interest to give some particulars of what is being done on similar lines on the other side of the world by the Brazilian Society of Leprology and the Sao Paulo Society of Leprology. These bodies publish a journal entirely devoted to the subject, the *Revista Brazileira de Leprologia*, and the June issue illustrates their activities. Villela, Castro, and J. V. D. Anderson, writing on lipæmia in leprosy, show that the total lipoids and fatty acids were increased in the blood of all the leprous patients they examined, whereas the cholesterol and iodine values were diminished. Neither the form of the disease nor any treatment of it made any difference to the lipæmia. Lepers of white races showed higher lipoid values than those of other races. Their conclusions differ from those of Paras of the Philippines, who found decrease of total lipoids and fatty acids, both in cases treated with chaulmoogra and in cases not treated; though there was a low blood cholesterol in untreated cases it rose to normal in cases treated with chaulmoogra.—Rabello writes on "sarcoid of Boeck of leprosy origin." The illustrations, however, depict what is typical of tuberculoid leprosy, one of the commonest forms of this disease, and he contends that the existence of sarcoid disease due to a special virus is highly problematical.—Pereira and H. H. Anderson record the results of examining gastric acidity in 55 patients with leprosy of mixed type. Of these 10 showed anacidity and achylia. From this, and from reports of altered function of spleen and liver and lipoid metabolism, they conclude that "leprosy is a generalised infection involving the viscera as well as peripheral tissues." While there is no doubt that in many cases the internal viscera are involved, it is remarkable how little the function of these organs is directly affected by the presence of *Bacillus lepræ*. Functional disturbances are much more often due to tissue degeneration; and this is the result of trophic ulcers and mixed infections secondary to neural involvement or to ulceration of nodules.—A careful clinical and histological study is made by V. Grieco of a case of nerve leprosy in which a double nerve abscess resulted in the formation of two chronic ulcers. The musculocutaneous nerve of the right foot was involved and there was also a macule of the dorsum of the foot in the area of distribution of this nerve. The entire macule and nerve were dissected out and examined histologically in serial sections. He refers to the frequency of leprous nerve abscess in India and other countries.—L. M. Bechelli refers to the frequency of splenomegaly in leprosy (39 per cent. of 476 cases examined).—L. Baptista describes the treatment of seven leprous patients suffering from excruciating pains especially of the arms and legs. After trying every known remedy, including tartar emetic, Gypsocol, Biostenyl, calcium chloride, benzoate of sodium, methylene-blue, atropine, and mercurochrome, without success, permanent relief was obtained in four cases from three daily injections of histidine. In a fifth case there was recurrence which was permanently relieved by another three injections. In the other two cases the benefit was nil.—A. R. de Souza deals with painful nodules of the ear.

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[1] Hugh Oldham, 1452 (?)–1519. By Alfred A. Mumford, M.D., Hon. Consulting Medical Officer to the Manchester Grammar School. London: Faber and Faber Ltd. 1936. Pp. 156. 6s.

The interest which the medical profession in Brazil is taking in at least the technical side of leprosy, one of the most serious medical problems in their country, is well shown by this excellent series of articles.

FAMILIAL ALLERGY

THAT allergic manifestations are often familial is well recognised, and E. Moracci is able to quote many previous publications on the subject. His own communication (Rass. di terap. e patol. clin., 1936, viii., 449) concerns a family in which sensitiveness to butter and cheese, even in minute quantities, has appeared in five successive generations. The allergic reaction took the form of violent gastro-intestinal disturbances appearing soon after either butter or cheese had been ingested. Of the 145 individuals composing the family, 17 (9 males and 8 females) were affected, while 18 (12 males and 6 females) had transmitted the condition to their descendants without being themselves affected. In Moracci's opinion the factor responsible in these cases is a recessive one. This view, however, presupposes the existence either of a large number of other families similarly affected or of related marriages in the family itself. No evidence of such intermarriage is given.

CHILDREN'S SUICIDES

UNDER the inspiration of Prof. Wimmer of the psychiatric department of the Rigshospital in Copenhagen, Sarah Kielberg has made an inquiry into the causes of suicide in childhood (Nord. med. tidskr., July 25th, 1936, p. 1193). Information was collected from the Danish death certificates for 1896–1915 and 1920–34, the registrations for 1916–20 being unsuitable for statistical research. The 96 suicides recorded were those of children between the ages of 9 and 14, the boys outnumbering the girls by six to one. As many as 70 were suicides by hanging, but only 1 of these children was a girl. On the other hand, of 19 who drowned themselves 13 were girls. The 3 children who shot themselves, the 2 who were driven over by a train, the 1 who was gassed, and the 1 who died of an unknown cause were all boys. There was not a single case of poisoning by drugs, presumably because it is difficult in Denmark for children to secure poisons, and because the slow accumulation of small quantities of a drug till enough is available for a fatal dose entails a continuity of purpose incompatible with the April weather of a child's mind. The age-incidence of the suicides showed a steady rise from 2 at the age of nine to 42 at the age of fourteen. Two of the fourteen-year-old girls committed suicide because of frustrated love affairs. A classification of the supposed causes of the suicides put fear at the head of the list with 28. Depression came next with 21, then unknown causes with 20, repentance with 12, and anger with 11. About a third of all the children were mentally or bodily defective or came from families marked by mental disease. As many as 78 of the 96 lived in the country where conditions predisposing to suicide are more liable to be overlooked and ignored than in a town. The decline in the frequency of children's suicides in Denmark in the period under review coincides with a decline in the incidence of adult suicides, though it is probable that the causes for the two declines are not identical. The waning abuse of alcohol and the growing welfare of old folk may well have reduced the frequency of suicides in adults but cannot, of course, have played any part in the suicides of childhood which, in their turn, may have dwindled in frequency with improvement in the conditions under which children, especially waifs and strays, now live.

LIBRARY CLASSIFICATION

To provide a guide to the literature in the Science Library at South Kensington is the principal object of a little book recently issued.[1] The whole of knowledge is treated in outline, with Groups 5 and 6 (Pure and Applied Science) more fully developed than the rest. The most complete sections are, as might be expected, those on engineering and chemical technology. Medicine itself occupies only 3½ of the 75 odd pages, and of these hygiene and public health take up a good half. Pathology and the surgical sciences are not adequately developed in this classification for the purposes of a special medical library, but with translations of new sections from the French appearing from time to time, it should not be long before the special librarian will have here as good a ready made classification as he could hope to devise himself. Even the system in use in the London School of Hygiene (see THE LANCET, 1936, i., 961) has comparative disadvantages. The work here reviewed has an excellent index of some 5000 specific entries, while for those interested, the introduction offers a clear explanation of the important Universal Decimal system of classification.

RECREATIVE PHYSICAL TRAINING

THE first report, covering a period of fourteen months up to the end of August last, has been issued of the Central Council of Recreative Physical Training. This council, initiated in 1935 by the Ling Association of teachers of Swedish gymnastics and the National Association of organisers of physical education, includes representatives of all the national organisations dealing solely with physical training, along with those of some interested organisations and a number of individual members, among whom are at least a dozen medical men and women. The executive committee includes the names of Sir Henry Brackenbury, Dame Janet Campbell, and Sir George Newman. The council began its work by making a survey of voluntary recreative work in the British Isles and found, as was unfortunately to be expected, that the work both of voluntary organisations and of local authorities is nearly all hampered by shortage of leaders and lack of facilities. The work of the council itself has been limited by its means, chiefly because, in deference to the wishes of King George's Jubilee Trust, it abandoned its intention of launching a public appeal for funds. Apart from its coördinating function, which has been productive of much good behind the scenes, its concrete achievement has been the preparation of a national register available for all who need leaders in any form of activity, and a small but successful camp held at Stapleford Abbotts, Essex, last August for training men leaders, at which Dr. F. W. Griffin acted as commandant. The council is now in a position to offer an advisory visit to any voluntary organisation that is planning organised physical recreation or training leaders for the purpose; but when means are available there are schemes in hand for a permanent centre where leaders can be trained, for working out a national test for such leaders, and for investigating the type of training most suitable at various periods of life. The council has for the present accepted accommodation at the offices of the National Playing Fields Association, 71, Eccleston-square, London, S.W.1.

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[1] Classification for Works on Pure and Applied Science in the Science Museum Library. Third edition. From the Science Museum, South Kensington. London: His Majesty's Stationery Office. 1936. Pp. 130. 5s.

ADDRESSES AND ORIGINAL ARTICLES

CONSTRUCTIVE HYGIENE IN OBSTETRICS *

By John S. Fairbairn, M.B. Oxon., F.R.C.P. Lond., F.C.O.G.

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The recent resolutions of the General Medical Council for the new curriculum to come into force on Jan. 1st, 1938, may be taken as its translation of the new thought in medicine into the training of future practitioners. The period of service in "midwifery, infant hygiene, and diseases of women" is therein laid down as six months, of which at least four must be devoted to midwifery and infant hygiene, or "maternity and infant welfare." During this period, or preferably more, childbearing women, infants, and young children will be observed and studied chiefly with a view to the promotion of health, normal function, and normal development. The attitude of mind in which this work is carried out differs materially from that for the treatment of the ill and damaged folk in the medical and surgical wards of the hospital and those allotted to the diseases of women. Although the line of approach to the work of the gynæcological side differs from that on the maternity and child welfare side, the service there brings home to the student the results of failure to prevent, because over a third of the patients suffer from disease or disability arising from childbearing.

As in all spheres of human endeavour, thought in medicine is liable to be swayed unduly from time to time by waves of new knowledge or fresh experience, but equilibrium is re-established as these disturbing factors become adjusted to their proper level. Thus when I was in my apprenticeship, thought in medicine was overweighted by the great advances in morbid anatomy and the science of bacteriology, then in its infancy. The merits of physicians were determined by their success in diagnosing ante mortem the pathological conditions to be revealed post mortem, and surgeons were preoccupied in testing the many new operations rendered feasible by the work of Pasteur and Lister. Gradually other elements came in to restore the balance temporarily upset—both from within and without medicine. Time does not permit of a discussion of the internal influences at work, but I would draw attention to the marked effect of the increasing sensitiveness of the social conscience of the country and the legislation arising therefrom. Much must also be ascribed to the world war with its self-examination and unveiling of the weaknesses of the national physique; the psychological consequences of the stress of war, the absence of serious epidemics in the armies, and the general determination that conditions should be better after the war have all had repercussions on medical thought. As compared with the end of last century, it is more *preventive*, more *individualised*, and yet more *socialised* in its outlook.

Implications of Preventive Medicine

The connotation of the term preventive in relation to medicine requires some explanation before discussing a statement often made but not always fully applied that "midwifery is a branch of preventive medicine." Much more than prevention ordinarily signifies is implied, in so far that the effort to promote and build up health and physique is a prominent and, indeed, the primary consideration of preventive medicine. There is thus a constructive side, usually termed "constructive hygiene," or "constructive physiology" when applied to specific systems or functions. The other and more distinctly preventive aspect, which I have ventured to designate as "destructive pathology," in order to mark a differentiation between the two, aims at destroying or removing the causes of disease and disability, as, for instance, in checking the spread of infection by destroying the causes of infection by disinfective measures, and by isolation of the infected, contacts or carriers, and so on. The illustration that will have the strongest appeal to those who have begun surgical work is that outstanding triumph of preventive medicine, the antiseptic and aseptic technique in which you are drilled in the operating theatres and surgical wards. It is chiefly destructive pathology by killing the organisms that cause septic infection by heat or chemicals. It has, however, a constructive side that should not be overlooked, though more often adopted to increase the resistance of the already infected patient than as a protective measure before operation on the uninfected. An open-air life, sunlight, a diet with extra vitamin content, and other means of improving the general health also add to the capacity of the body to battle with infection of all kinds. Other constructive methods adopted in special circumstances to increase immunity are the injection of protective vaccines or sera or blood transfusions. I do not, however, wish to labour this differentiation into constructive and destructive aspects, which cannot always be precisely made, as my object is rather to impress on you the importance of the constructive side, so that it will come into your minds as first to be tried and to be developed with further experience of what it can do. Constructive hygiene cannot even be claimed as a new thing, and in an elementary form must be almost as old as mankind. The development of muscular power and skill in the control of movement by education through constant practice must have been adopted early in order to fit primitive man to hunt wild animals or fight his fellow-men, otherwise he would have been weeded out in the struggle for existence. Training for athletic contests or prize-fights provide an excellent example of constructive physiology applied to preparation for strenuous physical effort and endurance. But its underlying principles and wider applications have been long in being recognised and certainly the above instances have been slow in reaching the dignity of the titles now given them.

These basic points may be made clear by summing them up as the successive lines to be held by medicine in its fight for the health of mankind against disease and disability. They are:—

(1) Measures to promote health of body and mind.

(2) Removal of the causes and conditions leading to disordered function.

(3) The early discovery of any disorder of function and its remedy before serious or permanent damage results.

(4) The cure or relief of established disease or disorder.

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* An opening address delivered on Oct. 13th at the beginning of the autumn session of the Welsh National School of Medicine.

The first two or front lines roughly represent preventive medicine, and the two later or back lines curative medicine, the last of all being widely regarded as the chief duty of the doctor. Actually it is the last ditch in which the struggle can be maintained. If the family doctor is to retain his due position in the health service of the country, his training ought to equip him to hold the front lines effectively and with some chance of success. The difficulty in so equipping him is that patients warded in hospital have, in the vast majority of cases, reached a stage at which the opportunity of holding the front lines has passed. Even in the out-patient and casualty departments where the early and minor disorders are seen, the time for preventive measures has passed. The General Medical Council has endeavoured to solve this problem by placing the obligation on all teachers in all parts of the curriculum—"Throughout the whole period of study, the attention of the student should be directed by his teachers (*a*) to the importance of the measures by which NORMAL HEALTH may be assessed and maintained, and (*b*) to the principles and practice of the PREVENTION of disease."

INDIVIDUALISATION

The next characteristic distinguishing the medicine of to-day from that of a generation ago is that its practice is more carefully adapted to the individual patient. Its importance will be clear if you interpret health as the harmonious as well as the normal working of all systems of the body and that this harmony is unattainable under heavy mental stress. As mental reaction to illness, disablement, disappointment, or other form of trouble or anxiety varies in type and degree with every individual, his temperament, character, habits, occupation, and environment must have full consideration before the mode of life and management that will best meet his case and circumstances can be correctly estimated. It is the prominent part played by imagination and the realisation of consequences that differentiates the doctoring of *homo sapiens* from veterinary medicine. No one is better placed to understand the personality with which he is dealing than the family doctor, and no factor is more important in determining his success in practice than his power of assessing individual characteristics and needs among his patients, and how they can best be met. His management must vary with their different ways of reacting to the buffetings of life. In order to stress this aspect the new curriculum regulations bring "the elements of normal psychology" into the preclinical training of the student. As you will see as I go along there is full play for the exercise of individualisation in obstetrics.

THE SOCIOLOGICAL ASPECT

Very brief reference will suffice to draw attention to this aspect of modern medicine which has also arisen from the wider recognition of the influence of surroundings and mode of life on health. Sound hygiene and the promotion of health call for a clear atmosphere, good housing, pure water-supply, clean milk, unadulterated and wholesome food, and many other matters for which responsibility has been placed by legislation on local health authorities throughout the country. Many Acts of Parliament, such as the National Health Insurance and Midwives Acts, have given the general practitioner a part in social services. Diseases arising from industrial conditions and the means for their prevention have special claim to mention in an area such as South Wales where some of you may serve as certifying factory surgeons and have a share in carrying out the provisions of various enactments for safeguarding workers. Obstetrics supplies many opportunities of stressing its widespread sociological associations.

The Place of Obstetrics in Medicine

Having now cleared the ground by a review of changing thought, as I have seen it and see it to-day, the place occupied by obstetrics in the realm of medicine and its contribution towards the nation's health calls for a brief explanation. Clearly obstetrics holds a key position owing to its concern with the start of a new generation. Its part is to secure the maximum new lives at the minimum cost in loss of or damage to the mothers, and to give a good start to the new lives. The mother is the executive in the nurture of her young family and effort on its behalf must concentrate on her and work through her. Except for emergencies at birth the care of the infant in teaching hospitals falls to a specialist in infant hygiene, the pædiatrician, and the mother during her later stay in hospital is advised by two counsellors. This plethora of advisers has led to suggestions that the obstetrician should return to the custom of olden days and assume the triple responsibility for "midwifery and diseases of women and children," or that there should be a splitting of the obstetricians into those who practise maternity and child welfare and those who practise midwifery and gynæcology. Division or rearrangement on some such lines is certainly a future possibility and may even now best meet the needs of smaller towns, but with the growth of knowledge the return to the old system is out of the question. The pædiatrician must have his place in the team of the maternity department and work in close coöperation with the obstetrician in determining the routine management of the infant and the instruction therein of the mother. The essential matter is that the work for the child must be carried out on the same lines and in the same spirit as those followed in the earlier work for the mother.

OBSTETRICS IN THE CURRICULUM

As the student does not come to the maternity department until he has completed his training in general medicine and surgery, we obstetricians have the responsibility of putting the coping-stone on his professional education, a responsibility we cannot shirk. It is our bounden duty so to plan his six months' term of service in midwifery, infant hygiene, and gynæcology that he will leave it fitted for family practice in that direction and with a wider outlook on medicine as a whole. The new regulations of the General Medical Council give a lead as to the arrangement of this term. Besides its instruction already quoted that four of the six months must be devoted to midwifery and infant hygiene, it adds another that "Throughout the six months the student should receive practical instruction in the wards and out-patient department of the maternity hospital in the principles of: (*a*) antenatal and postnatal care; (*b*) the management of the puerperium; (*c*) the care of the new-born infant." To carry out this resolution to the letter of the law would be exceedingly difficult in many schools, and I feel sure that the General Medical Council has no more wish than I have to stereotype the training of the future medical practitioner. As I read it, it could be carried out in the letter by formal demonstrations at set hours, but to fit it into the system that has descended to us from the old apprenticeship of "walking the hospitals," in which the student was brought up in the way he should go by going round with his teachers and taking part with them in their work, would be almost impossible, especially where a large number have to be passed through the department every six months. As I interpret it, the spirit of the regulation would be fulfilled by avoiding separation of the course into compartments and conducting it as a single study, with maternity and child welfare as its focal point, and the promotion of normal function as the motif.

Having some ten years ago initiated with my colleagues at St. Thomas's Hospital a six months' whole-time scheme of training on lines very similar to those now made obligatory, I can speak from experience of its working and assure students and teachers alike that it interests and impresses and serves to put those finishing touches to an education that may otherwise fail to develop the breadth of vision it should. I will now venture to put forward some points that strike me as possibly helpful to obstetric colleagues and other teachers on whom the onus may fall of making adjustments to fulfil the requirements of the new curriculum.

The enhanced value to the student if presented at the outset with a bird's-eye view of a system of preventive medicine in working order can scarcely be overstated. But I found it no easy matter with an invasion of fresh students every three months. Those able to begin with the prenatal clinic and work through the maternity wards to welfare infant clinics and the gynæcological side obtained gradually a correct perspective of the whole, which those unfortunates who perchance had to start at the wrong end were liable to miss. Possibly an introductory week or so spent in obtaining a general view of the department's work by attendance on a session or two of each section might serve to give a clearer impression to the new entrant and imbue him with the spirit in which the work is conducted.

From these general principles underlying the planning of this part of the curriculum, I will turn to a consideration of some distinctive features of its various stages.

PRENATAL CARE

My experience as an examiner and as inspector of examinations has convinced me that the constructive and sociological aspects are inadequately impressed on the student. Candidates who have grasped constructive effort as I have tried to put it before you to-day are very rare birds. Questioned on the purpose of antenatal supervision, candidates think of it almost wholly in terms of the search for albuminuria, malpresentations, disproportion, and other conditions indicative of future trouble. Few textbooks on antenatal work set out in its due perspective the social, educational, and constructive side of the work. The important part undertaken by midwives, social workers, and health visitors is not immediately under the eyes of the student, who is often too exclusively instructed on selected cases of obstetrical or medical complication. The cases on which he is tested at his examinations are too largely of the same type, and he is rarely questioned on other than purely obstetrical matters. Many teaching schools have continued on the old lines of the antenatal clinic that was used solely for picking out cases of possible difficulty or complication for indoor rather than outdoor management, with a relative neglect of the wider developments. On the other hand, the public maternity and child welfare clinics have been more successful on the hygienic and educational than the obstetrical side, and the strange thing is that contact between them and the teaching schools is lacking, and there is no opportunity for one to learn from the other. "East is East and West is West and never the twain shall meet" holds good for all but a minute fraction of work of a like nature undertaken by voluntary bodies and public authorities. Closer contacts and coöperation will be brought about as the public hospitals and clinics provide opportunities for teaching, and will be to the advantage of both and the training of future practitioners.

My own efforts to bring the social and constructive side to the notice of my students began in a small way more than 20 years ago by calling to my aid as many of the ancillary services as possible for each group as it came along. Thus the social service department gave an account of its work for the expectant mother before the students attended their cases on the district and the student was encouraged to report to the lady almoner on the conditions in the home and the circumstances of his patients. The "Sister Mothercraft" with her samples of hygienic and labour-saving baby clothing was present at the clinics and might be heard instructing the mothers. Occasional demonstrations were given in the maternity ward by the sister of the massage and physical exercise department of bed exercises for the lying-in mother and since my day similar exercises have been worked out for special cases from the antenatal clinic designed to help the woman to face her confinement with confidence and learn to play her part. In view of the growing importance attached to diet and nutrition in pregnancy, much more attention should be paid to dietetics. These examples are intended merely to illustrate and emphasise the importance of presenting to the student all aspects of antenatal supervision, and particularly its primary objective, constructive hygiene. The great educational opportunities of the prenatal period are the reason for the suggestion in the curriculum regulations that attendance on clinics for expectant mothers should be continuous throughout the six months. Modern practice in the lay-out of maternity hospitals is leading to an increase in the ratio of antenatal to lying-in beds, thus adding to experience in this period. In addition to those patients with serious conditions calling for hospital management, there are many doubtful and borderline cases in which the proper line of treatment can be determined only after close observation and the response to tests and therapeutic measures. The remarkable results attained in lessening the incidence of congenital syphilis in infants by efficient treatment of the mother in early pregnancy is a striking example, but there are many other conditions in which the future health of mother or child is favourably influenced. Full opportunity should be taken to make use of the indoor antenatal cases as well as those attending the outdoor clinics.

CHILDBIRTH

The results of the care in the prenatal period will be tested during the crisis of birth. If mechanical difficulties have been recognised and obviated, the great hindrances to normal function are anxiety, fear, and fatigue, and the elimination of the first two of these, begun during pregnancy, is continued during the management of labour. Nothing serves more to improve the chances of a natural outcome than that the prospective mother should have acquired a full understanding of her own part, confidence in her own power to see it through, and the knowledge that there is help behind her should she need it. The physical exercises already mentioned are surely worth trial and development in teaching maternity institutions and should be combined with training in "relaxation." Training in the use of the natural powers to the best advantage, as and when required, implies also the power to relax completely in the intervals and thus lessen fatigue. Such exercises are, however, worth trial only in carefully selected cases of those interested and responsive patients who are able to coöperate well. It is common knowledge that the effects of fatigue appear earlier in uncongenial tasks and dull repetition work. Fatigue is a condition in which the psychical element plays as prominent a part as the physical, and in childbirth, when progress is slow and discouraging or in the case of highly strung and sensitive women, induction of sleep or relief of pain by drugs is frequently called for in order to obtain rest for mind and body and thus promote natural function. The medical practitioner carries an extensive armament in his midwifery-bag, all of which he must know how and when to use. Though aiming at natural delivery, he learns that artificial aids of one kind or another must not be withheld until ill effects arise in mother or unborn child. He must assess the normal progress of the labour and its effects on mother and child to determine the fleeting moment at which some form of intervention on his part may be indicated by signs of departure from the normal. These features of midwifery practice are mentioned to illustrate the vast opportunities it offers to develop the clinical instinct and judgment of the medical student.

Having learnt the management of childbirth within the hospital with all its facilities to hand and skilled assistance at his elbow, the student should next have the opportunity of applying the knowledge and experience thus acquired to the more difficult circumstances of attendance on women in their own home. Unfortunately this valuable and characteristically British form of practical training on the outdoor district is now less readily obtainable than formerly, and it is difficult to see how its place can be filled. It is the one time in his studentship that the budding practitioner goes into the homes of his hospital patients and sees how they live and have their being. Besides the more intimate acquaintance with their problems and social environment, the student must learn to improvise and make the best of the conditions as he finds them. It is true that these conditions were often too difficult and supervision too distant and slovenly methods thus readily acquired. These unfavourable features are now capable of remedy by careful selection of the homes after visitation and closer supervision of the student's work until he had proved himself capable of adapting his methods to the circumstances. The disappearance of this experience would detract much from the training of the practitioner to be and its rounding off by service in the maternity department. I trust that all medical schools and maternity hospitals will use every effort to retain and develop a service that has for centuries proved highly beneficial to the mothers and provided sound practical training for medical students and pupil midwives.

THE LYING-IN PERIOD

The time spent by the mothers in hospital after delivery offers two excellent examples of constructive physiology in the restoration of muscles overstretched or damaged and the establishment of breast-feeding. The former was my first conscious essay into constructive work and was begun shortly before and interrupted by the war. With the aid of the staff of the massage and physical exercise department, bed-exercises were devised both to lessen muscular weakness from confinement to bed and to improve the tone of the muscles that support the abdominal and pelvic organs, and thereby diminish disabilities and discomforts arising from their laxity. Starting with simple breathing exercises, involving contraction of the abdominal muscles, followed later by body movements bringing in the flank and other muscles, they ended up with contraction of the pelvic floor muscles combined with resisted contraction of the thigh muscles. Because I regard the establishment of breast-feeding in difficult cases and still more its re-establishment weeks after weaning as the most striking lesson I ever had in constructive physiology, it would greatly please me if every student had the same lesson. To one brought up in the dark ages when trouble with natural feeding was promptly met by resorting to one of many substitutes then in vogue from which a choice could be made, it was little short of a miracle. For my lesson I was indebted to Sir F. Truby King when he was over here in the later war years, but it is now too everyday an affair to marvel at, and all done merely by applying those factors that stimulate milk secretion and removing those that hinder it. This work falls to both maternity and child welfare, to the latter of which I now pass.

INFANT HYGIENE

An infant welfare clinic was started in the obstetric department of my hospital in 1912, taken over by the children's department as a going concern at the end of the war and greatly extended by those in charge of it. Now there are more clinics for well babies than ill babies at St. Thomas's Hospital. The welfare clinics form a follow-up of our own maternity cases living near the hospital (others being referred to clinics nearer their homes). Should a well baby become an ill baby it is transferred with mother to the sick babies clinic, a punishment which I understand arouses a great effort by both to earn a speedy remission of sentence and an early return to their natural home in the welfare clinic. Without personal experience of work or teaching in infant clinics, I can but emphasise the importance of the training there. The work is pure constructive hygiene at a time of life of prime importance for the future health and physique of the nation. It offers the student an opportunity of learning to assess normal health and normal development and the means by which they can be promoted and maintained. The value of such experience for those entering family practice is self-evident. Among those higher in the social scale than the clinic-attending class, the services of the family doctor have rarely been sought save in cases of continued or serious illness or if the nursery clinical thermometer reaches a level that strikes mother or "Nanna" as calling for more than home-made doctoring. He has thus had little chance of applying such experience of constructive hygiene in infancy as he may have obtained. If duly equipped to give like services to those of the infant clinic, and they are needed in all classes of the community, dare we hope that our future practitioners will succeed in overcoming maternal prejudices so far as to be installed in charge of the nursery and guide in the upbringing of the family?

POSTNATAL CARE AND DISEASES OF WOMEN

On this part there is little to be said because it offers less on the constructive side than those already discussed. The purpose of postnatal care is to keep the mothers under observation and secure their complete return to efficiency. Those suffering from injury or illness are referred to the gynæcological or other appropriate department of the hospital. Many mothers complain of backache and tiring easily after returning to their household duties and the care of the family; most of them are in great need of a period of rest and relief from the everyday task, and as the mother cannot be separated from her young infant, it is not always easy to arrange such relief. Those suffering from weak or overstretched muscles will benefit greatly from the physical exercises mentioned above and all require advice on the hygiene and mode of life best suited to their circumstances. Gynæcological treatment is required only for conditions generally recognised as productive of further trouble if neglected.

Service in the gynæcological department is a replica of that on the medical and surgical sides and, being concerned with the disorders and diseases of the female reproductive system, represents the pathological, the reparative and curative side in contrast with the physiological and hygienic side predominant in midwifery and infant hygiene. As somewhere between a third and a half of the work of the department is the result of childbearing, valuable experience is gained by the student both in seeing the disabilities caused by failures in prevention and the cost of their repair to the patient in suffering, loss of time and money. To drive the lesson home and point the moral, the obstetric history is usually reviewed in order to find the reason of the failure and how it might have been avoided.

Conclusion

I hope I have succeeded in showing how great is the variety of the work during these six months and in indicating how students may obtain a clear view of, and even have a small part in, a system of preventive medicine. A last word of advice is to follow it immediately with, to quote the regulations, "A clinical clerkship for a period of not less than one month in a children's ward or hospital" and thus round off the children's side as the service in the diseases of women has done for the maternity side.

OBSERVATIONS ON THE MECHANISM OF RHEUMATIC FEVER

By Alvin F. Coburn, M.D.

(From the Department of Medicine, College of Physicians and Surgeons, Columbia University, and the Presbyterian Hospital, New York City)

Fifty years have passed since Haig-Brown first recognised a symptom-free interval between tonsillitis and the onset of acute rheumatism.[1] His observations have been confirmed by a number of students of rheumatic diseases.[2-4] These observers are agreed that there are three clinical phases in the development of an attack of rheumatic fever. The first is one of acute upper respiratory tract infection, lasting for only a few days. The second phase follows immediately after this infection and is characterised by a complete absence of clinical symptoms and signs. Its duration varies from a few days to perhaps six weeks, but is generally between one and two weeks. The third phase is the period of rheumatic manifestations. It shows wide variations in intensity and duration.

Clinical observations have dealt almost exclusively with Phase III. Of recent years data have been accumulating on the nature of Phase I.,[5] showing the appearance of hæmolytic streptococcus in the upper respiratory passages at this time. Phase II. remains unexplored. It is my belief that this second phase is crucial in the development of rheumatic activity.

It is well recognised that hæmolytic streptococcus pharyngitis is followed by uncomplicated recovery in most individuals. A small minority, however, develop rheumatic fever shortly after convalescence from this type of infection. I am attempting to define wherein such individuals differ from the normal. Both types of subjects appear to be equally susceptible to pharyngitis. The clinical character of the infections and the strains of hæmolytic streptococcus involved have been indistinguishable. In both types of subjects, immune responses vary widely in degree, occasionally failing to appear. When antibodies develop in the normal subject they are not associated with disease, but the development of an immune response in rheumatic subjects is frequently accompanied by the appearance of rheumatic activity. As the disease progresses, the antibody titre rises; but the maximum level of titratable antistreptolysin is not reached until some time after the height of the rheumatic attack.[6] An interpretation of the relationship of the immune response to the development of the rheumatic process is the aim of the present paper. The data consist of observations on the serological events immediately following hæmolytic streptococcus pharyngitis.

OBSERVATIONS ON THE NATURE OF PHASE I

(*a*) *Natural history of infectious agent.*—Severe attacks of rheumatic fever are generally preceded by *mild* hæmolytic streptococcus pharyngitis. Despite the transient character of this infection, bacteriological observations have repeatedly shown that the invading organism may persist in the vicinity of the respiratory passages for a period of months after its disappearance from the mucosal surface. It has been possible in many instances to trace the migration of the infecting strain from the mucosal surface to the submucosa and later to tonsils or accessory sinuses. This sequence of events is a general characteristic of hæmolytic streptococcus infections of the upper respiratory tract, and is not peculiar to Phase I. of rheumatic fever.

(*b*) *Antigenic properties of the infectious agent.*—The strains of hæmolytic streptococcus commonly associated with pharyngitis belong to Lancefield's Group A and are usually of a virulent matt type.[7] They produce in vitro at least two soluble antigenic principles—erythrogenic toxin and streptolysin—and contain within the bacterial cell at least three other potential antigens—type specific M-substance, nucleoprotein, and perhaps carbohydrate. The liberation of streptococcus antigens in the infected host can be inferred from significant increases in specific antibodies. Most patients in the rheumatic state are Dick-negative, indicating that they have developed neutralising antibodies to the erythrogenic toxin. Increases in antistreptolysin titre and precipitins to M-substance[*] are regularly developed during attacks of acute rheumatism. Most patients show increased skin reactivity to the nucleoprotein of hæmolytic streptococcus, and during severe attacks frequently develop precipitins to this fraction. The information available at the present time does not permit an appraisal of the relative importance of these substances. However, it is known that erythrogenic toxin in scarlet fever[8] can damage the endothelium of the vascular tree. The action of nucleoprotein as an antigen after its liberation from the interior of the bacterial cell seems well established. Too little is known about streptolysin or M-substance to permit an opinion on their immediate effects. It appears that toxin and streptolysin are released at the onset of infection, whereas M-substance and nucleoprotein are liberated after the disintegration of bacterial cells.

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[*] In addition to these well-recognised antibodies, antifibrinolysin is found in the blood of patients with acute rheumatism. Observers are agreed that this is a response to hæmolytic streptococcus infection.

IMMUNOLOGICAL RESPONSES IN PHASE III

In the absence of a method of investigating the total antibody response to streptococcus infection I have relied on the two antibodies which at the present time can be estimated most accurately. Antistreptolysin in human serum can be titrated quantitatively, is specific for hæmolytic streptococcus infection, and is probably also group-specific.[9] Precipitins to the M-substance [6] of the infecting agent can be detected qualitatively. This antibody is considered type-specific.[10] These two antibodies represent immune responses to both soluble and intracellular bacterial derivatives.

(*a*) *General significance of antistreptolysin production.*—A rise in antistreptolysin titre is generally accepted as evidence of a recent infection with hæmolytic streptococcus.[11] However, no explanation has yet been offered for the persistence of high titres in some individuals long after the acute infection has subsided. Occasionally there is the opportunity to demonstrate the persistence of the infectious agent in such patients by direct bacteriological culture.[12] Furthermore, in current experiments (unpublished) of McBroom in the laboratory of the Presbyterian Hospital, New York City, it has been possible to produce and maintain high antistreptolysin titres for some weeks. This has been accomplished in guinea-pigs by the introduction of agar foci infected with a scarlatinal strain, N.Y. 5. The introduction of the focus gives rise to an abscess which usually ruptures and heals. This infection has been followed by an increase in antistreptolysin titre in 33 out of 37 animals tested. Most of these titres have remained elevated (50 to 1000 units) for at least two months, and in a few instances have continued to rise. In sacrificed animals which still had demonstrable foci, hæmolytic streptococcus in pure growth has been recovered. Uninfected controls have maintained extremely low titre levels (below 10 units). The basic interpretation of a rise in antistreptolysin titre as an indication of recent infection with hæmolytic streptococcus is substantiated by these experiments. Although not yet complete, they suggest that the persistence of a high titre indicates continued antigenic activity of this organism or of its derivatives.

(*b*) *Possible significance of the antistreptolysin response in rheumatism.*—In addition to its significance as an indication of recent infection, it appears that the antistreptolysin response may be related to the mechanism of rheumatic fever. Certain findings which suggest this possibility are summarised in brief.

1. In spite of the prevalence of hæmolytic streptococcus infection during infancy, rheumatic fever does not appear to develop in advance of the capacity to produce specific antibodies to this organism. There is good evidence that the antibody-forming mechanism is incompletely developed at birth, and in infancy failure to develop circulatory antibodies is the rule.[13] The findings of Wilson et al.[14] and of Lippard and Johnson [15] show that antistreptolysin titres in children under three years of age are characteristically low and do not rise following hæmolytic streptococcus infections. These infections are normally handled by infants without the development of circulating antibodies, and rheumatic fever is rare at this age. Out of approximately 2000 rheumatic attacks I have observed only ten in children under three. These ten children all reacted in an abnormal way for their age, in that they developed high antistreptolysin titres, ranging from 250 to 2500 units. Their antibody-producing mechanism and their capacity to develop rheumatic fever both matured precociously.[†] This suggests that the maturity of the immune mechanism is pre-requisite to the development of rheumatism.

2. The duration of Phase II. shows considerable variation but appears to coincide with the time required for the appearance of the antistreptolysin response by the rheumatic subject.

3. In a group of rheumatic subjects infected with a single strain of hæmolytic streptococcus, those that developed an antistreptolysin response developed acute rheumatism, while those who failed to make this response escaped an attack.[16]

4. A rheumatic subject who contracts a series of hæmolytic streptococcus infections develops acute rheumatism only when the infection is followed by a rise in antistreptolysin titre. In the absence of an antistreptolysin response, there is no rheumatic attack.[6]

5. Two extreme clinical types of rheumatic fever are paralleled by two widely variant types of antibody response. In attacks characterised by acute onset, a period of severe illness, and by relatively rapid recovery, the titre reaches maximum relatively early—within a month of the onset of Phase III. In attacks with insidious onset, where repeated ten-day cycles of progressive severity culminate in severe carditis months later, the titre rises gradually, reaching its maximum height late in the illness.[6, 16]

6. Exacerbations of symptoms occurring during subsiding rheumatism are often preceded by a sudden transient fall[‡] in antistreptolysin titre (see ref. 6, Fig. 6). They are followed by a rise which may surpass the previous level. This finding suggests that something depresses the titre momentarily just before the appearance of symptoms.

The apparent connexion between the character of the antistreptolysin response and the rheumatic mechanism led me to examine the time relation between antistreptolysin titre and rheumatic activity as judged by symptoms and blood sedimentation-rates. A series of observations made on 100 unselected hospital admissions with rheumatic carditis are summarised below.

Clinical stage.	Sedimentation-rate.	Antistreptolysin titre.
Onset of symptoms.	Rising.	Rising.
Height of attack.	Maximum.	Still rising.
Beginning subsidence of symptoms.	Maximum.	Still rising or maximum.
Continued subsidence of symptoms.	Falling.	Maximum.
Disappearance of symptoms.	Falling.	Maximum or falling.
Rheumatic process quiescent.	Normal.	Falling or normal.[*]

[*] Depending upon duration of quiescence.

In summary, the initial rise in titre corresponded quite closely to the onset of symptoms. However, in no case did the titre reach its maximum at the same time as the symptoms and the sedimentation-rate, but it continued to rise even after the latter had begun to subside. Since the antibody titre rise follows rather than precedes the symptoms, there must be a still earlier factor which relates to both, and which presumably comes into operation during Phase II.

[†] These patients had strong familial histories of rheumatic fever.

[‡] This fall is slight and may be attributed to technique. However, I am inclined to believe it significant because a large number of patients have shown this change just before an exacerbation of symptoms.

IMMUNOLOGICAL INVESTIGATION OF PHASE II

Antistreptolysin titre curves following hæmolytic streptococcus infections show wide variations in the time in which the maximum height is attained. In erysipelas[17] and in tropical lymphangitis[18] the titre peak is reached within 20 days of the onset of infection. In acute rheumatism maximum titres rarely occur within five weeks, and in protracted cases they are not usually reached until several months after hæmolytic streptococcus pharyngitis. In order to determine whether these differences in titre curves are referable to the site of infection or to a peculiarity of response in rheumatic subjects, I have made detailed studies of the immunological responses to hæmolytic streptococcus throat infections in both normal and rheumatic patients. The individuals chosen for this investigation included the following: children with scarlet fever, young adults with pharyngitis, and quiescent rheumatic subjects who contracted pharyngitis while under observation. Serial determinations were made in parallel of the following: blood sedimentation-rate, antistreptolysin, anti-M precipitin and serum complement.§ Each patient was kept under close clinical observation for at least 60 days from the onset of infection. The patients are divided into four clinical groups, each of which will be discussed separately.

(A) *Scarlet fever.*—Eight patients having frank scarlet fever with rash were studied at Willard Parker Hospital during the 21-day isolation period and at their homes following recovery. All were children of the lower economic stratum. None gave a history of rheumatism. Throat cultures positive for hæmolytic streptococcus were obtained from each child during the acute infection. The organisms recovered fell into the following Griffith[19] types: five were Type 3, one was Type 27, and two could not be typed. Three developed mild septic complications (sinusitis and cervical adenitis). None developed any evidence of rheumatic activity. The serological findings were as follows:—

1. The *blood sedimentation-rate* was moderately elevated during the acute infections and during septic complications. The rates fell soon after the subsidence of symptoms. With the exception of one individual with cervical adenitis they were all normal at the end of three weeks.
2. The *antistreptolysin titre curves* showed great similarity, rising to a maximum within 17 days and beginning to subside between the third and fifth week. In one patient, the titre was already markedly elevated at the first observation (day 3) and subsided from then on.
3. *Anti-M precipitins* to the organism recovered during the throat infection appeared in the sera of all but one patient between the tenth and nineteenth day. Maximum titres were observed in 17 to 35 days. The rise in precipitin titre came after the rise in antistreptolysin titre. The maximum reactions were all strong; uncentrifuged readings being + +, centrifuged readings + + + to + + + +.
4. *Serum complement.*—There was great variation in the degree of complement deviation from one patient to another. However, in every case the first serum sample obtained (day 2 to 4) showed the maximum deviation of complement. All returned progressively to normal (usually 0·04 c.cm.) between the tenth and twentieth day.

(B) *Pharyngitis.*—Four young adults with frank hæmolytic streptococcus pharyngitis were studied during the acute illness and for 60 days thereafter at the Presbyterian Hospital. None were known to be rheumatic subjects. Throat cultures containing hæmolytic streptococcus in predominance were obtained at the onset of illness. The organisms recovered fell into the following Griffith types: one was Type 3; another was Type 22; two could not be typed.

Two patients had uneventful recovery; one developed mild sinusitis, and the fourth had in succession cervical adenitis, otitis, mastoiditis, and later polyarthritis and carditis. The serological findings in the first three cases will be considered together and those of the fourth will be considered later.

1. *Blood sedimentation-rates* were mildly elevated during the acute illness in the uncomplicated cases and moderately elevated during sinusitis. As in scarlet fever they subsided to normal with the disappearance of symptoms.
2. The *antistreptolysin titre curves* were all similar.|| They rose to a maximum level within ten days and were all subsiding at the end of six weeks.
3. *Anti-M precipitins* to the organism recovered during the throat infection appeared in the sera ten days after infection. Maximum titres were reached after the peak of antistreptolysin titres, and were less marked than those seen following scarlet fever.
4. *Serum complement.*—Little or no deviation was observed.

(C) *Hæmolytic streptococcus throat infections in rheumatic subjects not followed by recrudescences.*—Two rheumatic children contracted throat infections; one scarlet fever, the other pharyngitis. Both recovered without developing detectable rheumatic activity. Throat cultures with hæmolytic streptococcus in predominance were obtained from both at the onset of pharyngitis. One organism was Type 3; the other was not Lancefield's Group A, probably Griffith's Group C. Neither patient had complications. The serological findings were as follows:—

1. The *blood sedimentation-rate* was mildly elevated during the acute infection, subsiding to normal in the second week. Both showed a slight rise in the fourth week.
2. *Antistreptolysin titres.*—One failed to rise, the other showed irregular fluctuations during the second and third week.
3. *Anti-M precipitins* appeared on the twelfth and eighteenth days, reaching a maximum in six and three weeks respectively.
4. *Complement deviation.*—No striking change in complement was observed.

(D) *Hæmolytic streptococcus throat infections in rheumatic subjects, followed by rheumatic attacks.*—Four children with rheumatic heart disease who contracted (hæmolytic streptococcus) pharyngitis were kept under hospital care for a period of 60 days. Throat cultures, negative before pharyngitis, contained hæmolytic streptococcus in predominance during the acute infection. The organisms fell into the following Griffith types: 13, 4, 22, one not typable.

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§ Complement is reported as the smallest volume of patient's (fresh) serum which caused complete hæmolysis of a standard suspension of sensitised sheep cells. Normal values ranged from 0·02 to 0·04 c.cm. of serum.

|| In serial determinations made on 24 cases of uncomplicated hæmolytic streptococcus pharyngitis, I have previously observed a variety of responses. The antistreptolysin curves were of three main types: (1) those characterised by a rapid rise to maximum level, as in the present cases; (2) those characterised by a double peak with an early sharp rise in titre followed by a rapid fall and subsequent rise to a maximum; (3) those characterised by little or no change in titre level.

One patient, not known to be a rheumatic subject and chosen for study as a member of my clinical Group B, also developed a rheumatic attack.

Three of these patients developed severe rheumatism, one developed a moderate attack of short duration; the fifth developed vague symptoms and electrocardiographic changes which were followed by rapid recovery. The serological findings on these five patients were as follows:—

1. The *blood sedimentation-rates* during the acute infection were similar to those in uncomplicated pharyngitis. The rates returned to approximately normal level just before the onset of rheumatic activity when they rose precipitously. There was a close correspondence between the rates attained and the severity of symptoms. With subsidence of rheumatic activity there was a corresponding fall in sedimentation-rate.

2. *Antistreptolysin titre.*—All of the titres rose as a result of the throat infections. In the two milder cases maximum titres were reached 12 and 19 days after infection and were definitely subsiding in the seventh week. The three patients with severe rheumatism did not reach maximum titres until 34, 36, and 80 days (severest of the group) after the onset of infection. These titres were the highest observed in any of the patients reported here. They began to subside shortly after maximum levels were attained.

3. *Anti-M precipitins* appeared from 15 to 27 days after infection. The reactions were almost as strong as those observed after scarlet fever. They reached their maximum after the peak of antistreptolysin titre.

4. *Complement deviation* was studied in the four patients known to be rheumatic. The two who developed severe attacks showed marked deviation shortly before the onset of symptoms. In the two mild attacks complement deviations were slight. In contrast to scarlet fever and uncomplicated pharyngitis, where deviation occurred, if at all, at the onset of infection, in these patients complement deviation occurred after recovery from the acute infection.

These data collected on a small group of carefully studied patients show that there is considerable variation in the human antibody response to hæmolytic streptococcus throat infections. However, certain points of similarity were noted within each of the four clinical groups. Differences between groups can be visualised by the direct comparison of illustrative patients, whose responses are charted in Fig. 1.

The curves shown at the top of Fig. 1 refer to blood sedimentation-rates and can be taken as a crude index of the clinical changes. It is seen that the patients from Groups A and B showed no change in sedimentation-rate after recovery from acute infection, whereas the patient from Group C showed a slight disturbance and the one from Group D a violent disturbance beginning about three weeks after infection.

The next row of curves shows the antistreptolysin response. Patients A and B had a rapid rise and began to subside at the time which corresponds to Phase II. of the rheumatic attack. In contrast, patients C and D showed a delay in the attainment of maximum titres. These were reached 6 and 11 weeks after infection, the latter marking the end of a severe rheumatic attack.

The third row of curves shows changes in serum complement. The deviation observed in patient A occurred at the onset of infection. In patient B no deviation was detected. In patient C a slight deviation occurred 20 days after infection. In contrast to the first three curves, in patient D there was a marked deviation of complement between the twelfth and fifteenth day. Further study is necessary to determine the possible significance of this late deviation of complement. In all the patients studied, the subsidence of complement deviation was accompanied by a rise in antistreptolysin titre.

The presence and intensity of the precipitin reaction to M-substance of the infecting strain is indicated at the bottom of the chart.

AN APPARENT DELAY IN THE IMMUNE RESPONSE

In a large series of cases previously reported[6] the clinical character of the rheumatic attack has varied with the shape of the antistreptolysin curve. A striking characteristic in this series was that the sooner a patient developed a maximum titre, the sooner he recovered. In other words, those curves which approached normal responses were associated with short or mild attacks. In contrast, those characterised by an extremely slow rise have been associated with prolonged severe carditis. In the present study the number of cases is too small to permit generalisation. Nevertheless, the combined evidence suggests that a delay in the immune response to hæmolytic streptococcus may be characteristic of the rheumatic subject.

It appears that the normal antistreptolysin response following pharyngitis and scarlet fever is comparable to that reported in erysipelas,[17] and in tropical lymphangitis.[18] The usual response produces a maximum titre within 20 days. However, in each of these infections, the antistreptolysin rise occasionally fails to appear. If the rheumatic subject makes either of these two responses, he escapes an attack. Frequently, however, he develops an intense response a week or more after the normal response should have occurred. This is accompanied by acute rheumatism. The serological changes in a patient who developed a classical rheumatic attack are presented in detail.

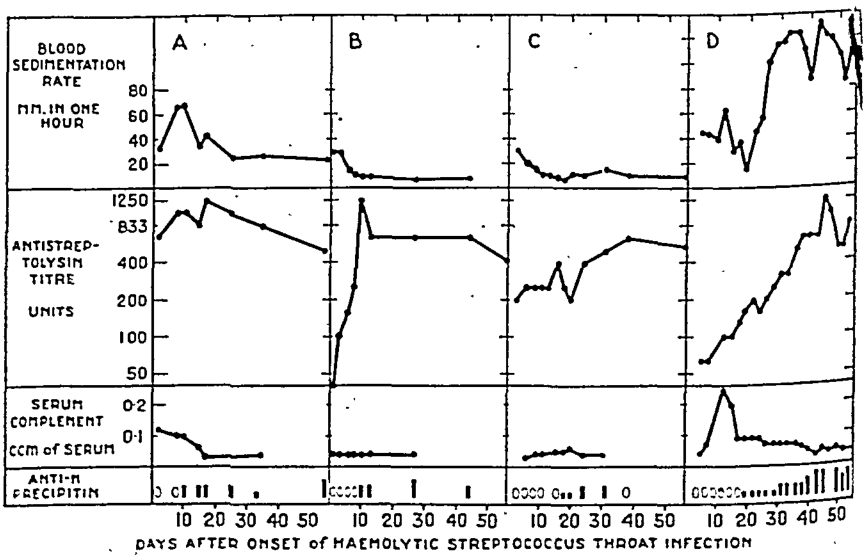

FIG. 1.—The responses of four groups of patients to hæmolytic streptococcus throat infections. Group A–scarlet fever (8 cases). Group B–pharyngitis (4). Groups C and D–rheumatic subjects. In Group D the throat infection was followed by recrudescence of rheumatism (see text).

CASE-HISTORY

In the spring of 1928 a boy aged 10 was admitted to the Presbyterian Hospital with pancarditis. His mother was a rheumatic subject and his sister had recently died of rheumatic heart disease. Clinical, bacteriological, and serological observations have been made from October, 1928, to the present time. They are summarised as follows.

Hæmolytic streptococcus pharyngitis in April, 1929, in May, 1930, and again in January, 1931, was followed on each occasion by a rheumatic attack requiring hospital care. From 1932 to 1936 he escaped hæmolytic streptococcus infection and remained free of detectable rheumatic activity. He grew normally and gained weight from 85 to 135 lb. The heart remained enlarged; signs of aortic insufficiency and mitral stenosis persisted; normal physical exertion was carried on without symptoms; the rheumatic process appeared quiescent. On Feb. 17th, 1936, he again contracted hæmolytic streptococcus pharyngitis and was admitted to the wards of the Presbyterian Hospital for observation. Although bed rest was maintained he developed another rheumatic recrudescence.¶

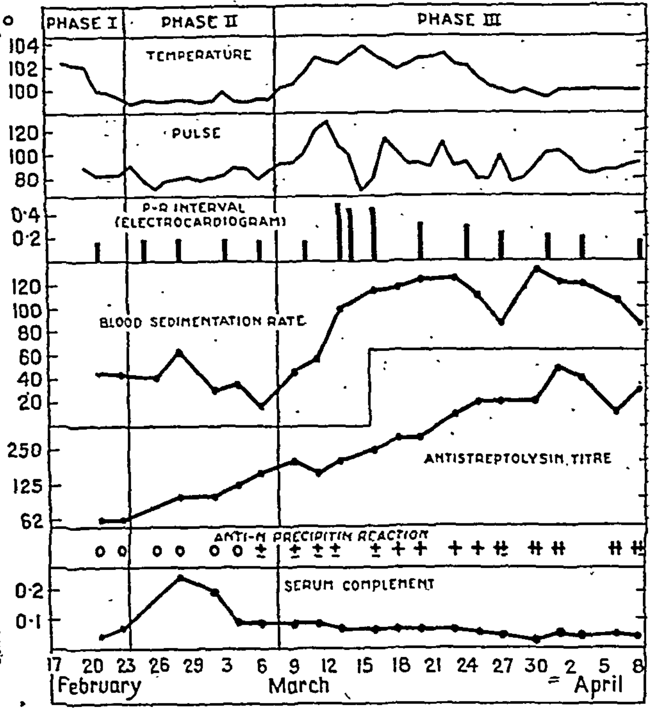

FIG. 2.—The clinical and serological changes characteristic of the development of a severe attack of rheumatism.

Clinical and serological observations made during Phases I., II., and III. are presented in Fig. 2.

PHASE I. (SEVEN DAYS)

(1) Throat: acute pharyngitis (tonsils had been removed during early childhood). Symptoms of sore-throat and earache subsided in seven days. (2) Hæmolytic streptococcus predominant in throat flora (previously absent for three years). (3) Temperature and pulse returned to normal after being moderately elevated during pharyngitis. (4) Electrocardiogram normal. (5) Erythrocyte sedimentation-rate moderately elevated. (6) Antistreptolysin titre normal. (7) Serum complement normal. (8) Anti-M precipitins to patient's organism, Type 13: absent.

PHASE II. (THIRTEEN DAYS)

(1) Throat: signs of infection subsided. No symptoms. (2) Flora: hæmolytic streptococcus present in small numbers, then disappeared. (3) Temperature and pulse normal. (4) Electrocardiogram normal. (5) Sedimentation-rate fluctuating, returned to normal at end of period. (6) Antistreptolysin titre increased, still within normal limits. (7) Serum complement markedly deviated. (8) Anti-M precipitins: absent.

PHASE III. (FIRST CYCLE)

(1) Throat normal. Nausea, aches, abdominal and precordial pain, erythema, pericardial friction rub on twelfth day of attack. (2) Throat flora: no hæmolytic streptococcus recovered. (3) Temperature rose to 104° F. Pulse fell to a rate of 40 during heart-block. (4) Electrocardiogram: marked prolongation of conduction time with heart-block from third to tenth day of attack. (5) Sedimentation-rate rose rapidly with onset of symptoms, reaching maximum level during second week of attack. (6) Antistreptolysin titre: rose at onset of attack, reaching maximum after the subsidence ** of symptoms was under way. (7) Blood complement returned to approximately normal level with the onset of attack. (8) Anti-M precipitins appeared with onset of attack reaching maximum level after symptoms subsided.

In summary, the studies on this patient showed that so long as he escaped hæmolytic streptococcus pharyngitis, he escaped acute rheumatism. Acute pharyngitis with this organism was followed by a rheumatic attack two weeks after the subsidence of acute infection. The attack was characterised by severe pancarditis. The electrocardiogram afforded a quantitative measurement of the intensity of the rheumatic process in the heart muscle. This was paralleled by the sedimentation-rate. The antistreptolysin titre and anti-M precipitins to the patient's organism rose progressively during the attack, reached maximum levels (antistreptolysin titre 2500 units) during the subsidence of symptoms, and persisted at high level during convalescence. The rise of antibody titre which began with the onset of the rheumatic attack was preceded by a marked deviation of complement. This occurred at the beginning of Phase II. As complement returned to normal level there was a coincident rise in antibody. The deviation of complement was the only immunological change detected before the onset of symptoms.

DISCUSSION

It becomes increasingly clear that the immune response to hæmolytic streptococcus infection is intimately connected with the development of rheumatic activity. Variations in the clinical character of the attack show a close parallel to the types of antistreptolysin curves developed. Up to the present time there has been no evidence as to whether the antistreptolysin curves observed in rheumatic fever were normal responses to hæmolytic streptococcus infection or not. The data presented in this paper, in conjunction with findings referred to previously[17 18] on other streptococcal infections, seem to indicate that the immune responses of the rheumatic differ from the normal in that they are delayed. If this should prove to be true in the light of more extensive data on normal responses, then it must be assumed that the rheumatic subject who develops an attack handles the products of hæmolytic streptococcus in a peculiar way. Such a concept harmonises well with the prolonged antigenicity of this organism during rheumatic attacks as evidenced by the persistence of high antistreptolysin titre levels for months after infection. In addition to the apparent delay in the immune response of the rheumatic subject, there may also be a delay in the final elimination of hæmolytic streptococcus products from the body. In conclusion, these observations suggest the hypothesis that the rheumatic state is characterised by an abnormal method of disposing of hæmolytic streptococcus products. The mechanism whereby such an abnormal immune response may induce disease is unknown. Further information on the nature of this abnormality may make possible an experimental approach to the mechanism.

¶ At this time a sibling who had been infected with the same strain of hæmolytic streptococcus (Type 13) developed an initial attack of carditis.[4]

** Phase III. continued for eight weeks. The latter part of this period is not included in the figure. It was similar to cases of severe carditis previously reported.[14]

SUMMARY

The data presented consist of observations on the serological developments immediately following hæmolytic streptococcus pharyngitis.

In the absence of complement deviations there is a rapid rise of the antistreptolysin titre after infection.

With the subsidence of complement-deviation there is also a rise in titre of this antibody.

The normal order of appearance of changes studied was: deviation of complement, rise of antistreptolysin titre, appearance of anti-M precipitins.

In the rheumatic subject the development of the antibody response appears to be delayed.

The work reported in this communication was carried out under the W. K. Kellogg Foundation Fund. I am deeply indebted to Dr. W. H. Bradley, of England, for his help in collecting the clinical data.

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VICTORIA HOSPITAL, BURNLEY.—To mark the jubilee year of this institution, plans are being made to replace the medical wards by a modern block which will cost over £11,000. The new wards are urgently needed, and it is hoped that the sum of £2750 which has been allocated by the Miners' Welfare Fund and £500 from the Mayor's hospital fund may be used as a nucleus for the jubilee fund.

MORTALITY AND LATER RESULTS OF SUBTOTAL GASTRECTOMY

By RONALD J. STILL, M.B. Camb.

LATE HOUSE SURGEON TO THE BRADFORD ROYAL INFIRMARY

IN view of the widespread interest in the surgery of the stomach, it has been thought fitting to record the results of an investigation of 97 partial gastrectomies performed in Bradford by Mr. Basil Hughes between 1925 and 1935. Articles on the subject are numerous, and the results of some of the more important investigations are briefly summarised here.

In 1926 Finsterer reported on 593 gastrectomies for gastric and duodenal ulcers. Since 1919 his immediate operative mortality in partial gastrectomy for gastric ulcer has been 4 per cent. (175 cases, 7 deaths), and for duodenal ulcer, 2 per cent. (357 cases, 7 deaths). Out of 105 patients on whom partial gastrectomy was performed for gastric ulcer, he claims that 103 were cured—i.e., able to do hard work without restrictions of diet; out of 236 resections for duodenal ulcer, 223 were cured. In 292 resections there was only one gastro-jejunal ulcer, this being subsequently cured by a more extensive resection.

Lake recorded the results of 65 partial gastrectomies, with an immediate mortality of 6·3 per cent. and 89·8 per cent. satisfactory results. Only one of his cases subsequently showed free hydrochloric acid in the gastric contents, and of those hæmatologically examined after operation (the number of these is not stated) none showed less than 4,800,000 red cells per c.mm.

Garnett Wright recorded a series of 63 partial gastrectomies for chronic ulcer, with an immediate mortality of 4·8 per cent. Out of 44 examined subsequently, 36 were said to be in excellent health and living ordinary lives.

Morley recorded the results of 120 partial gastrectomies, 52 of the Polya type, with a mortality of 6·4 per cent., and 68 of the Schoemaker type with a mortality of 2·9 per cent. His conclusions were that the Schoemaker operation offers a lower mortality, with a diminished liability to post-operative anæmia.

Gordon-Taylor and his collaborators made a very complete investigation of the remote results of 52 partial gastrectomies done for gastric ulcer, duodenal ulcer, and gastro-jejunal ulcer. They assessed the results in terms of the post-operative capacity for work of their patients, and in addition made complete biochemical and hæmatological examinations of all the cases in their series. They found anæmia, of microcytic type, to be present in 44 per cent. of their cases.

Berg, from the Mount Sinai Hospital, New York, where partial gastrectomy has been adopted as a routine measure for gastric and duodenal ulcer since 1920, records a series of 401 primary resections for gastric and duodenal ulcer, with 28 deaths, a mortality of 6·9 per cent. Among 516 cases of primary and secondary gastrectomy, there were 6 cases of probable or possible recurrence, an incidence of 1·1 per cent. if all are assumed to be definite. He had seen no case of pernicious anæmia following gastrectomy, but did not comment on the occurrence of anæmia of microcytic type.

Emerson and Czirer, contrasting the results of gastrectomy with those of palliative operations, gave a mortality of 7.8 per cent. in operations for resection, with 81·4 per cent. good results, 16·6 per cent. fair, and 2 per cent. bad. Walton gave it as his view that the operation of choice in ulcers of the lesser curvature is wedge resection of the ulcer with gastro-enterostomy. In 37 cases of gastrectomy he had 70·2 per cent. cures—i.e., patients fit for full work without restrictions of diet: 1·6 per cent. of his cases developed gastro-jejunal ulcers subsequently. Five cases developed anæmia after partial gastrectomy (type and blood counts not stated).

Since Moynihan drew attention to a case of profound anæmia after a total gastrectomy for carcinoma, much work has been done in the investigation of post-operative anæmia. Rowlands and Simpson collected 15 cases of Addison's anæmia following gastric operations, and added two of their own. Vaughan reviewed 122 cases of anæmia and described three new cases of hypochromic anæmia. Hartfall investigated 40 cases of anæmia following gastric operations, and concluded that the anæmia is usually hypochromic in type, is commoner in women, usually progressive, occurring most frequently between the ages of 40 and 50, and its severity is independent of the amount of stomach removed at operation. Klein and Walters and Comfort have discussed the effect of gastrectomy on the secretory capacity of the stomach.

SCOPE OF THE PRESENT INVESTIGATION

This survey relates to a consecutive series of 97 hospital cases, 26 females and 71 males, on whom the operation of partial gastrectomy had been performed by Mr. Basil Hughes either at the Royal Infirmary, Bradford, or at the St. Luke's Hospital, Bradford.

The operation was performed for chronic gastric ulcer in 55 cases, for combined gastric and duodenal ulcers in 8 cases, for gastro-jejunal ulcer in 4 cases, for duodenal ulcer in 13 cases, and for gastric cancer in 17 cases. The operation performed was in most cases Finsterer's modification of the Billroth II. method. In one early case the Billroth I. method was used, in one case a total gastrectomy was performed, and for the gastro-jejunal ulcers modifications of Finsterer's method were adopted. The method of anæsthesia employed was in nearly every case preliminary Avertin with local anæsthesia for the abdominal parietes and splanchnic infiltration. In the early cases, Stovaine was used in addition as a spinal analgesic, and a very small amount of ether was administered by open inhalation, but in the later cases the spinal and inhalation anæsthetics were dispensed with entirely. Only in the earliest case was inhalation anæsthesia adopted as the sole anæsthetic.

The procedure was as follows: a form of questionnaire was sent to each of the patients known not to have died as a result of the operation. The questions were designed to enable some estimate to be formed of the patients' state of health, capacity for work, and gastro-intestinal function after the operation as compared with the pre-operative condition. Out of 83 patients circularised, replies were received from 59, and 6 others were known to have died since leaving hospital. Subsequently 43 patients were seen personally and examined clinically, and at a later date fractional test-meals were performed on 22 patients and blood counts on 23 patients.

GASTRECTOMY FOR SIMPLE ULCERATION

Mortality.—(*a*) Immediate operative mortality. Of 80 cases operated on for simple ulceration (gastric, duodenal, gastric and duodenal combined, and gastro-jejunal) 4 died as a result of the operation, giving an immediate operative mortality of 5 per cent. Of these 4, 1 died three days after the operation following a hæmatemesis, 1 died four days after operation from acute bronchitis, and the other 2 died five and six days respectively after operation, the cause of death not being stated.

(*b*) Late mortality. Of 76 patients not dying as a direct result of the operation, 3 are known since to have died. One died two years three months after operation from carbuncle. One committed suicide four months after the operation, and in one case, a case of gastro-jejunal ulceration, the patient died five months after operation, the cause of death not being known. Of the remaining 73 cases, 8 could not be traced owing to change of address, and no reply was received from 8.

General condition of patient.—In 57 cases traced, an attempt was made to estimate the later results of the operation by assessing the general condition of the patient after operation, using the classifications adopted by Lake, and by Gordon-Taylor and his collaborators as a basis of comparison.

Lake, in his series, classified his results as follows: "satisfactory + +," those patients who gave satisfactory answers and added enthusiastic comments about their health; "satisfactory +," those patients who answered all the questions in a gratifying manner, but without comment; "satisfactory," those who had a complete relief of symptoms except for occasional feelings of distension and constipation; "unsatisfactory," those who were better but still had attacks of pain; and "unsatisfactory +," those who had had a recrudescence of symptoms or who had developed fresh symptoms. On this basis, the results of the present series are classified in Table I., with Luke's results for comparison.

TABLE I

Classification of Results

—	PRESENT SERIES.		LAKE'S SERIES.
	Cases.	Per cent.	Per cent.
Satisfactory + + ...	20	35	76
,, + ...	25	43·9	19
Satisfactory	7	12·4	2·5
Unsatisfactory	5	8·7	2·5
,, + ..	—	—	—

On this basis approximately 90 per cent. of the patients traced in the present series may be said to have been relieved. It must be remembered, however, that whilst in the majority of cases more than three years had elapsed since the operation, in 6 instances the interval was only six months.

Gordon-Taylor and his collaborators adopted as a basis of comparison the patients' post-operative capacity for work. "Those patients who are able to do full-time work without undue fatigue, who eat a normal diet and enjoy good health are designated 100 per cent. efficient. Patients working part-time only or doing whole-time light work and taking restricted diet are considered to be 50 per cent. efficient. Those totally incapacitated are designated 0 per cent. efficient." On this basis the results of the present series are shown in Table II., with Gordon-Taylor's results for comparison.

TABLE II

Classification of Results. Present Series

Efficiency per cent.	Pre-operative.		Post-operative.	
	Cases.	Per cent.	Cases.	Per cent.
0 ..	11	19·3	8*	14·2
50 ..	46	80·7	15	26·3
100 ..	—	—	34	59·5

* Three cases included in this group were really unclassifiable as they had been unable to obtain employment. All three declared that they felt able to work and in consequence might be included in the 100 per cent. efficiency group.

Gordon-Taylor's Series

Efficiency per cent.	Pre-operative.		Post-operative.	
	Cases.	Per cent.	Cases.	Per cent.
0 ..	40	77	2	4
50 ..	10	19	4	8
80 ..	2	4	—	—
100 ..	—	—	46	88

Gain in weight.—The average gain in weight in this series was 11 lb. One patient had gained 4 st. since the operation, and one had lost 20 lb.

Time taken to return to full work.—A study of the time taken to return to work after operation showed that out of the 57 cases followed up, 27 were back at full work in 3 months, 10 (17·5 per cent.) in from 3 to 6 months, 10 (17·5 per cent.) in from 6 to 12 months. Of the remaining

TABLE IV.—(A) DETAILED SUMMARY OF RESULTS AND (B) LABORATORY INVESTIGATIONS

Case.	Age.	Sex.	Lesion.	Date of operation.	Weight. Pre.	Weight. Post.	Efficiency (%). Pre.	Efficiency (%). Post.	Present occupation.	Return to work.	Bowels.
					st. lb.	st. lb.					
1	30	M.	D.U.	Dec., 1929	9 7	10 6	50	100	Salesman.	1 yr.	N.
2	48	F.	G.U.	March, 1931	8 4	8 4	50	50	Housewife.	3 mths.	C.
3	56	M.	G.U.	Feb., 1932	9 7	10 11	50	100	Fireman.	3 ,,	N.
4	40	M.	G.U.	Jan., 1935	6 9	8 9	50	0	Unemployed.	—	C.
5	38	M.	D.U.	Dec., 1929	—	Gained.	50	100	Platelayer.	6 wks.	N.
7	59	M.	G.U.	June, 1934	—	—	0	0	Unemployed.	—	C.
8	35	M.	G.U.	Nov., 1932	—	Gained.	50	100	Stoker.	2 mths.	N.
12	58	M.	G.U.	June, 1934	7 12	9 3	50	100	Wool washer.	7 „	N.
13	59	F.	G.U.	April, 1932	8 4	7 0	50	0	Unemployed.	—	—
14	56	M.	G.U.	Jan., 1934	9 6	10 7	50	100	Painter.	4 mths.	N.
15	32	M.	G.U.	Sept., 1932	8 5	8 8	0	100	Salesman.	10 „	N.
16	50	M.	G. & D.U.	June, 1928	10 7	11 4	50	100	Grocer.	2 „	D.
19	64	F.	G.U.	Jan., 1935	—	—	50	50	Laundress.	3 „	N.
20	44	F.	G.U.	Feb., 1934	8 6	8 5	50	50	Housewife.	8 „	C.
23	56	M.	G. & D.U.	„ 1935	6 10	7 10	50	0	Unemployed.	—	C.
25	63	F.	G.U.	„ 1929	—	—	50	50	Domestic.	9 mths.	N.
30	43	M.	G.U.	Dec., 1931	8 4	9 0	50	50	Grocer.	4 „	C.
32	43	M.	G.U.	„ 1929	11 2	10 12	50	100	Unemployed.	8 „	N.
34	53	M.	D.U.	Feb., 1930	8 10	9 2	50	100	Traveller.	4 wks.	N.
35	69	F.	G. & D.U.	March, 1931	5 8	6 11	0	50	Housewife.	6 mths.	D.
36	50	M.	G.U.	„ 1927	9 10	10 8	50	100	Foreman.	2 „	N.
37	56	F.	G.U.	Oct., 1933	11 2	10 6	50	100	Housewife.	8 „	N.
39	53	M.	D.U.	Dec., 1929	11 0	11 7	50	100	Tailor.	1 yr.	N.
41	42	M.	G.U.	Jan., 1934	11 2	11 5	50	100	Barman.	6 wks.	N.
42	53	M.	G. & D.U.	April, 1932	8 13	13 0	50	100	Conductor.	3 mths.	N.
43	55	F.	G. & D.U.	Nov., 1933	8 2	6 10	50	0	Unemployed.	—	C.
44	42	M.	G.U.	Oct., 1932	8 6	10 6	50	100	Woodworker.	3 mths.	C.
48	40	M.	G.U.	March, 1932	—	Gained.	50	100	Traveller.	2 „	N.
50	60	M.	G.U.	June, 1931	6 5	7 3	0	50	Unemployed.	3 „	C.
51	37	M.	G.U.	Jan., 1935	6 5	7 0	50	100	Surveyor.	3 „	N.
52	32	M.	G.U.	Oct., 1933	—	Gained.	50	100	Joiner.	2 „	N.
54	56	M.	G.U.	Jan., 1935	10 10	10 6	50	0	Unemployed.	—	N.
55	57	M.	G.U.	June, 1933	8 7	10 0	0	50	„	5 mths.	C.
56	59	M.	G.U.	Dec., 1928	11 8	11 0	50	100	Miner.	2 „	C.
59	46	M.	G.U.	Feb., 1931	9 7	12 0	50	100	Dyer.	4 „	C.
61	51	M.	G.U.	„ 1930	9 4	9 4	50	50	Sheetmender.	6 wks.	N.
62	44	M.	D.U.	„ 1930	—	—	50	0	Unemployed.	—	N.
63	44	F.	G.U.	Sept., 1934	6 9	7 13	50	100	Cleaner.	3 mths.	N.
64	43	M.	G.U.	April, 1932	11 7	12 13	50	100	Electrician.	3 „	N.
67	55	M.	G.-J.U.	Oct., 1934	7 6	8 12	0	50	Unemployed.	—	C.
69	51	M.	D.U. & G.U.	Sept., 1928	—	9 12	0	50	„	2 yrs.	C.
70	37	F.	D.U.	Dec., 1929	7 0	9 9	50	100	Burler.	1 yr.	N.
74	48	M.	D.U.	June, 1928	7 6	8 8	50	100	Woolcomber.	3 mths.	N.
75	56	M.	G.U.	July, 1933	5 0	7 7	50	50	Unemployed.	7 wks.	N.
76	44	F.	G.U.	Jan., 1934	6 10	7 0	50	100	Nurse.	4 mths.	N.
78	65	M.	G. & D.U.	„ 1935	9 3	10 5	50	100	Unemployed.	3 „	C.
79	53	M.	G.U.	May, 1929	8 0	9 0	50	100	Textiles.	3 „	C.
81	39	M.	D.U.	Sept., 1928	9 0	9 6	50	100	Driller.	4 „	N.
85	57	M.	D.U.	June, 1932	—	—	0	0	Asylum patient.	—	—
86	69	F.	G.U.	Jan., 1934	5 9	6 7	0	50	Housewife.	7 mths.	C.
88	48	M.	G.U.	June, 1932	7 9	8 9	50	100	Weaver.	3 „	N.
89	54	F.	G.U.	March, 1931	4 5	7 0	0	100	Millhand.	6 „	C.
92	48	M.	G.U.	May, 1934	8 2	8 7	50	100	Weaver.	2 „	D.
93	67	M.	G.U.	Aug., 1931	10 6	9 6	0	50	Repairer.	6 „	N.
95	38	M.	G.U.	July, 1933	—	Gained.	50	100	Cleaner.	4 wks.	N.
96	61	M.	G.U.	Sept., 1934	9 8	10 6	50	100	Tailor.	10 „	N.
97	41	M.	G.-J.U.	May, 1933	11 3	10 12	50	50	Salesman.	4 mths.	N.

G.U. = Gastric ulcer. D.U. = Duodenal ulcer. G.-J.U. = Gastro-jejunal ulcer. N. = Normal. C. = Constipated. D. = Diarrhœa.
Yrs., mths., wks. = Years, months, weeks.

10, 1 returned to work after 2 years, 3 were unable to supply information since they had been unable to obtain employment, 1 was employed in house work and 5 were unable to work.

Scar hernia.—In the great majority of cases, an upper abdominal mid-line incision had been made, and in 10 out of 42 cases in which this point was noted a hernia, or several small herniæ, presented through the scar. These herniæ were for the most part small and were not complained of by their owners.

Anæmia.—Each patient who attended at the hospital was examined clinically and attention was paid to the following points: general nutrition, pallor, icterus, tongue, cardiac abnormality, splenomegaly, evidences of sub-acute combined degeneration of the spinal cord, and changes in the skin and nails. In 22 cases (16 males, 6 females) a hæmoglobin estimation, a red and white cell count and an examination of a stained film were made. The results are conveniently classified according to hæmoglobin defect into—

Group.			
A.	.. Normal (hæmoglobin above 85 per cent.).	..	3 cases (males).
B.	.. Severe anæmia (hæmoglobin 10–50 per cent.).	..	2 „ („).
C.	.. Moderate anæmia (hæmoglobin 51–70 per cent.).	..	9 „ (6 m., 3 f.).
D.	.. Slight anæmia (hæmoglobin 71–85 per cent.).	..	8 „ (5 m., 3 f.).

Therefore out of 22 cases examined, 11 (50 per cent.) were found to have a severe or moderate degree of anæmia. Anæmia of all degrees was met with, the lowest hæmoglobin value in the series being 39 per cent.

The anæmia was found, in this series as in Hartfall's, to be commonest in the decade 40–49. The majority of the anæmic patients complained of symptoms referable to the anæmia, although some who were shown to be deficient in hæmoglobin did not complain of any symptoms.

The spleen was palpable in 2 cases, the splenomegaly being only slight in each case. No blood examination was possible in one of these cases; the hæmatological report in the other was: hæmoglobin, 80 per cent.; red cells, 4,080,000; colour-index, 1·0; white cells, 4800; film, much anisocytosis.

In 9 cases the colour-index was 1·0 or more. In none were changes characteristic of Addison's anæmia found in the stained film, but the Price-Jones curve was not determined. A detailed analysis of the blood picture of all the cases examined hæmatologically is given in summary in Table IV. A remarkable feature of the blood examinations was the low white cell count in almost every case. The average white cell count was 5040, the lowest being 3200 and the highest 7040.

Fractional test-meals.—Fractional test-meals were performed on 21 patients. The average emptying time was greatly reduced (average emptying time, 1 hour) being

TABLE IV.—(B) LABORATORY INVESTIGATIONS

Case.	Diet.	Post-prand. distension.	Appetite.	Hernia.	Spleen.	Skin changes.	R.B.C. (mill.).	W.B.C.	C.I.	Hb per cent.
1	Normal.	Yes.	Very good.	—	—	—	3·52	4170	0·82	58
2	„	—	Fairly good.	Yes.	—	—	3·80	6400	0·94	72
3	„	—	Good.	„	Palp.	Yes.	4·08	4800	1·00	80
4	Light.	—	„	—	—	—	3·20	6400	1·00	65
5	Normal.	Yes.	„	Yes.	—	—	—	—	—	—
8	Restricted.	„	„	—	—	Yes.	2·72	6300	0·72	39
12	Normal.	—	„	—	—	„	—	—	—	—
13	Restricted.	Yes.	Poor.	—	—	—	—	—	—	—
14	Light.	—	Very good.	—	—	—	—	—	—	—
15	Normal.	Yes.	„	—	—	—	—	—	—	—
16	„	—	Good.	—	—	—	—	—	—	—
19	„	—	Very fair.	—	—	—	3·68	5000	0·88	65
20	Light.	Yes.	Good.	—	—	Yes.	—	—	—	—
23	Restricted.	—	„	—	—	—	4·32	4160	0·95	82
25	Normal.	Yes.	„	—	—	—	—	—	—	—
30	„	„	Fairly good.	—	—	—	—	—	—	—
32	„	—	Very good.	Yes.	—	—	3·52	4700	1·00	70
34	„	Yes.	Good.	—	—	—	—	—	—	—
35	Restricted.	„	Fair.	—	—	—	—	—	—	—
36	Normal.	„	Good.	—	—	—	—	—	—	—
37	„	—	„	—	—	—	3·20	5200	0·94	60
39	Light.	Yes.	„	Yes.	—	—	—	—	—	—
41	Normal.	—	Very good.	„	—	—	—	—	—	—
42	„	Yes.	Good.	—	—	—	4·00	6400	0·74	62
43	Restricted.	„	Poor.	—	Palp.	Yes.	—	—	—	—
44	Normal.	—	Very good.	Yes.	—	—	4·60	4480	0·96	80
48	„	—	Good.	—	—	—	—	—	—	—
50	„	Yes.	„	—	—	Yes.	3·36	3520	1·28	86
51	Light.	—	Very good.	—	—	—	4·40	4160	1·00	88
52	Normal.	—	„	Yes.	—	—	—	—	—	—
54	„	Yes.	Good.	—	—	—	3·60	6250	1·05	80
55	Restricted.	„	„	Yes.	—	Yes.	3·28	4160	0·68	45
56	Normal.	„	Very good.	„	—	—	—	—	—	—
59	„	—	„	—	—	—	—	—	—	—
61	„	Yes.	Good.	—	—	—	—	—	—	—
62	Restricted.	„	Poor.	—	—	—	—	—	—	—
63	Normal.	—	Good.	—	—	Yes.	3·20	3200	0·80	51
64	„	—	Very good.	—	—	„	4·00	7040	0·85	68
67	„	—	Fair.	—	—	—	—	—	—	—
70	„	—	Good.	—	—	—	—	—	—	—
74	„	Yes.	„	—	—	—	—	—	—	—
75	Light.	„	Fair.	—	—	—	—	—	—	—
76	Normal.	„	„	—	—	Yes.	3·76	3840	1·00	80
78	„	—	Good.	—	—	„	—	—	—	—
79	„	Yes.	Fair.	—	—	„	—	—	—	—
81	„	„	„	—	—	„	—	—	—	—
86	„	„	Poor.	—	—	—	4·02	6500	1·00	80
88	„	—	Good.	—	—	—	—	—	—	—
89	„	—	„	—	—	Yes.	—	—	—	—
92	Restricted.	Yes.	„	—	—	„	3·40	6250	1·04	71
93	Normal.	„	Very fair.	—	—	—	—	—	—	—
95	„	—	Excellent.	—	—	—	3·60	7000	0·87	63
96	„	Yes.	Good.	—	—	—	3·68	3500	0·85	86
97	Light.	„	Very good.	—	—	Yes.	—	—	—	—

over 2 hours in only 3 cases. The resting juice was scanty, the average amount being about 8 c.cm. Free hydrochloric acid was only present in 3 of the 21 cases (14·3 per cent.). All patients were given ergamine acid phosphate during the course of the test-meal, and fractions were subsequently withdrawn, in 2 cases the injection was followed by the secretion of a small amount of free hydrochloric acid.

Pyloric control of water absorption.—Gordon-Taylor and his collaborators observed in their series that cases with a rapidly emptying stomach showed a sudden drop in the specific gravity of the urine following the test-meal. This observation was not confirmed in the present series, no constant relation being noted between the emptying time of the stomach and the specific gravity of the urine passed one hour after the test-meal. Table III. gives the results in detail:—

TABLE III

Emptying Time of Stomach and Specific Gravity of Urine passed One Hour after Test-meal

Emptying time (hours).	Sp. grav.	Emptying time (hours).	Sp. grav.	Emptying time (hours).	Sp. grav.
¼ ..	1005	¾ ..	1015	1¼ ..	1005
¼ ..	1008	¾ ..	1005	1¼ ..	1005
½ ..	1005	¾ ..	1015	1½ ..	1006
½ ..	1005	1 ..	1010	1½ ..	1006
½ ..	1015	1 ..	1006	2 ..	1004
¾ ..	1005	1 ..	1020	2 ..	1015
¾ ..	1008	1 ..	1007	2¼ ..	1005

Analysis of unsatisfactory cases.—Of the 5 cases classed as unsatisfactory, 1 was readmitted to hospital seven months after operation for recurrent abdominal pain and some vomiting. She was investigated while in hospital, but no evidence of organic disease was found.

A second patient said she was satisfied with the result of the operation, and stated that she did not think she would have been alive but for it, but she was classed as unsatisfactory because she was still unable to do her work after 18 months. She complained of weakness, breathlessness, palpitations, headaches, and dryness of the skin, and had lost 20 lb. in weight. Her spleen was palpable one fingers-breadth below the costal margin, and her symptoms were probably referable to anæmia, but further investigation was not possible.

Another (Case 54) was operated on in January, 1935, and has had constant abdominal pain since the operation. Fractional test-meal showed blood in several of the specimens, with complete achlorhydria. It is possible that this was a case of carcinoma of the stomach, not diagnosed at the time of operation, which should not properly be included in this section.

One patient was not satisfied with the result of the operation, and complained of lack of energy, breathlessness, swelling of the feet, forgetfulness, and absent-mindedness. Since operation he has been readmitted to hospital and treated for mitral regurgitation and œdema. On examination he was found to have only a slight pallor, but considerable swelling of the feet and dryness of the skin, with cracks and fissures, and very well-marked koilonychia with striation and brittleness of the nails. Blood examination showed: hæmoglobin, 45 per cent.; red cells, 3,280,000; colour-index, 0·7; white cells, 4160; the stained film showed anisocytosis, mostly microcytes, with some poikilocytosis.

The fifth patient was not satisfied with the results of the operation on account of frequent severe feelings of nausea, though he had no pain or vomiting. In other respects he was apparently well, and he declined further investigation.

Apart from Case 54 there was no patient who showed definite evidence of recurrent ulceration or of gastrojejunal ulceration.

GASTRECTOMY FOR MALIGNANT ULCERATION

Of the 7 cases of malignant disease who survived operation, 3 are known to have died since, one of recurrence 18 months after operation, one of pulmonary tuberculosis 2¾ years after operation, and in one the date and cause of death could not be traced. Of the remaining 4, 2 could not be traced owing to change of address, one is alive and well 2¼ years after operation, and one is alive and well 6 months after operation.

SUMMARY

1. The results of an attempt to follow up a consecutive series of 97 partial gastrectomies are recorded. Of 80 done for simple ulceration, 4 died as a result of the operation, giving an immediate mortality of 5 per cent. Of the remaining cases 57 were traced and answered the questionnaire whilst 43 were re-examined personally. Of the 57 a good result up to the time of review may be said to have been obtained in approximately 90 per cent. of the cases.

2. Out of 5 unsatisfactory cases, 2 were due to anæmia, 1 was possibly due to malignant disease not apparent at the time of operation, and the remaining 2 have gastro-intestinal symptoms without any clear organic cause.

3. Free hydrochloric acid was found to be present in 14·3 per cent. of 21 cases subjected to gastric analysis.

4. The findings of other authors regarding the pyloric control of water absorption were not confirmed.

5. A hæmoglobin percentage of less than 70 per cent. was found in 50 per cent. of the 22 cases examined hæmatologically.

I wish to express my thanks to Mr. Basil Hughes for his kind permission to make free use of his case-notes, to Dr. S. J. Hartfall and Dr. R. E. Tunbridge for much help and many valuable suggestions, and to Mr. H. Bolland, Sister Wolfenden, and the nursing staff of the Bradford Royal Infirmary for much practical help.

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THE DUKE OF KENT AND HOSPITALS.—On Oct. 21st the Duke of Kent opened the Sheffield Royal Hospital nurses' home at Tapton Court. The whole of the nursing staff can now be housed in one building, and much has been done to increase their comfort. The dining hall can be used for dancing, each bedroom has a fitted basin, there are 20 bathrooms and several showers. On the following day His Royal Highness opened the new Scarborough Hospital which has cost £130,000, of which £115,000 has been raised in ten years.

GASTRIC ACHLORHYDRIA IN CHRONIC AND SUBCHRONIC PROLIFERATIVE ARTHRITIS

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SINCE Woodwark and Mackenzie, and more especially Knud Faber, drew attention to the large number of patients suffering from chronic arthritis who also had gastric achlorhydria, the subject has been examined at various times. Treatment has suffered because little regard has been paid to the occurrence of achlorhydria in the various types of chronic arthritis, which necessarily must be the basis of any investigation of this kind. Secondly, the advantages of the more modern methods of examination of the gastric juice—e.g., the fractional analysis of test-meals—have not been available to a large number of previous investigators, a fact which has hampered the interpretation of many of the earlier results.

Only a few authors (Woodwark and Mackenzie, Hurst, Coates and Gordon, Wilkinson and Oliver) attach importance to gastric anacidity as a predisposing factor in the genesis of arthritis; Borries considers it to be a function of the duration of the disease; Lottrup, and Keefer and Bloomfield regard it as a senile achlorhydria, for they found a proportional increase through the different age-groups in the number of patients without gastric acid. Others (Faber, Hartfall, Kahlmeter, Miller, and Smith) do not adopt any final attitude to the problem. Lastly, Douthwaite found so few cases of gastric achlorhydria in his series that it is intelligible why he does not attach any importance to them.

Evaluating the occurrence of gastric achlorhydria in any group of patients, such factors as the patient's age and sex and the duration of their affection must be taken seriously into consideration. This has also been the case in many previous papers on the subject, but to us it seems equally important to differentiate between the different entities in the vast bulk of "arthritis." Actually Miller, Smith, and Lottrup seem to be the only investigators who have classified their material on this basis. If a satisfactory result is to be arrived at from examinations of this kind, besides using an adequate method, one must decide which groups of joint diseases are to be investigated and whether it is possible to indicate important differences within these groups.

TECHNIQUE

The examination of the gastric secretion of our patients has been based on the Ewald test-meal and, whenever an achlorhydria was found, on fractional analysis. For this purpose we have used the histamine test described by Hecht-Johansen from our department. Histamine (Imido Roche) ½ mg. was used; the stomach contents were drawn off when fasting, and then every 15 minutes up to 2½ hours. When we suspected the conditions to be not quite ideal—judging by the blood pressure, pulse, and flushing of the face—the test was repeated. Pepsin determinations were made in any case of histamine-refractory achlorhydria (Ege's method, described by Rona and Michaelis) on three different samples. The results have been expressed by the sign +, whereby +++ signifies the maximal reaction requiring for neutralisation 3 c.cm. 20 per cent. NaCl solution + 10 c.cm. saturated solution of ammonium sulphate. The samples of secretion were titrated with Congo-red and phenolphthalein as indicators which gave respectively hydrochloric acid and total acidity.

In two of our patients the achlorhydria shown by the test-meal was not investigated further with fractional analysis, but all the others have been tested as above.

MATERIAL

We have confined ourselves in this publication to the study of cases that we, like Bach, call proliferative arthritis—i.e., the group in which the joint changes are primarily localised in the synovial membranes and joint cartilages, and are of a proliferative nature with a tendency to ankylosis. Of these we have investigated those that may be described as "true rheumatoid arthritis" and those called "infective arthritis" in the various shades of meaning of that term, which includes cases of arthritis gonorrhoica tarda (Wirz), Still's disease in adults (Wetherby, Moltke, Graber Duvernay), arthritis urethritica (Freund), and other less sharply defined types. Rheumatic fever and gout have not been considered.

The material comprises 69 patients, of whom 30 suffered from true rheumatoid arthritis and 39 from other forms of proliferative arthritis. In the latter group were 7 patients suffering from the so-called Still's type of chronic arthritis, 21 patients with chronic infective arthritis, 3 with arthritis gonorrhoica tarda, 3 with arthritis urethritica, and 5 with the more vague diagnosis of chronic arthritis.

In Table I. the patients are listed according to diagnosis, sex, age, and duration of disease. The results of Ewald's test-meal are expressed by Congo-red and the phenolphthalein figures (the sign 0/ means that the Congo reaction was negative, and that there was not sufficient for a determination of the total acidity); then follow the results of the histamine test expressed in the maximal values obtained, first for acidity, then for pepsin. On the whole, the quantity of secretion has been rather low in cases of achlorhydria—these stomachs apparently have been quickly emptied. As will be seen, the series comprises 45 females and 24 males, a ratio that may have its explanation in the fact that the department can accommodate only about half as many males as females. Of the females, 28 appear among the true rheumatoids, where there are only 2 males.

It is of interest to note that the pepsin reactions in many of our patients with histamine-refractory achlorhydria have been distinctly positive. This seems thus to differ decidedly from an affection such as pernicious anæmia, where we, like Hecht Johansen, have found pepsin reactions distinctly negative in all cases.

RESULTS

Among these patients, after one or more Ewald's test-meals, 24 apparently had achlorhydria, but by means of histamine tests 8 of these were "unmasked." Two of the patients, however, were given test-meals alone without a subsequent histamine test (one of them, No. 15, had two Ewald's meals, but sufficient material for titration was drawn off only after the second. Thus only one titration was made in this patient). We decided to include these two among the achlorhydrias, though we are aware of the slight element of uncertainty thereby introduced into the result of the investigation. Thus we arrive at a total of 16 achlorhydrias, 23 per cent. of all the patients examined, a figure closely corresponding to Faber's and not exceptionally high, though greater than the normal (10–15 per cent.).

TABLE I

No.	Sex.	Age.	Duration of disease (years).	Ewald test.	Histamine.	
					Acid.	Pepsin.
1	M.	50	12	0/24	4/17	..
2	F.	46	11	0/ –	0/24 : 0/8	+
3	F.	30	5	49/69	..	..
4	F.	46	5	40/76	..	..
5	F.	58	7	54/70	..	..
6	F.	48	12	0/20	0/18	+++
7	F.	66	22	42/57	..	..
8	F.	26	4	30/62	..	..
9	F.	62	2	0/ –	18/32	+++
10	F.	54	20	25/43	..	..
11	F.	60	10	0/15	0/17	+++
12	F.	57	5	0/ –	0/7	+
13	F.	35	1	35/65	..	..
14	M.	42	7	0/10	0/15	Trace.
15	F.	56	1	0/ –	..	..
16	F.	59	17	0/ –	61/76	..
17	F.	53	3	45/74	..	..
18	F.	60	13	28/50	..	..
19	F.	52	7	0/ –	0/8 : 0/6	+ 0
20	F.	54	1	0/13	0/5	+
21	F.	56	3	17/49	..	..
22	F.	38	18	48/67	..	..
23	F.	43	17	0/16	21/27	..
24	F.	48	3	0/17 : 0/17	0/10	0
25	F.	65	3	0/12	48/55	..
26	F.	56	11	0/26 : 0/17	..	..
27	F.	53	2	29/65	..	..
28	F.	45	3	0/14	0/15	+
29	F.	31	1	45/60	..	..
30	F.	56	2	55/77	..	..
31	M.	42	4	15/31	41/61	..
32	F.	10	8	30/59	..	..
33	M.	22	1	18/46	..	..
34	M.	41	6	0/20 : 0/30	16/26	..
35	M.	47	4	46/70	..	..
36	F.	50	2	+/ –	88/92	..
37	M.	16	1	47/85	..	..
38	F.	30	13	27/55	..	..
39	F.	58	1	48/68	..	..
40	M.	41	1	61/75	..	..
41	F.	52	6	0/29 : 20/67	..	..
42	F.	31	8	36/71	..	..
43	F.	48	1	0/23 : 0/29	39/54	+++
44	M.	46	1	0/26	18/25	++
45	M.	38	1	?	{0/14 0/17 : 0/9}	0
46	F.	53	6	0/6	0/22	++
47	M.	54	4	19/43	..	..
48	M.	53	11	12/38	..	..
49	M.	47	10	10/40	..	..
50	F.	66	19	0/15	0/18	++
51	F.	50	18	0/16	0/5	0
52	F.	66	1	55/68	..	..
53	F.	47	15	23/43	..	..
54	M.	46	1	69/92	..	..
55	M.	58	1	30/46	..	..
56	F.	54	1	46/66	..	..
57	F.	27	5	40/56	..	..
58	F.	49	2	12/33	..	..
59	M.	73	3	0/03	0/10	0
60	M.	56	2	28/48	..	..
61	M.	65	10	61/99	..	..
62	M.	41	1	29/56	..	..
63	M.	25	3	21/43	..	..
64	M.	27	7	48/76	..	..
65	M.	24	1	40/66	..	..
66	M.	46	1	32/62	..	..
67	M.	56	2	28/48	..	..
68	M.	42	1	49/80	..	..
69	F.	25	12	47/73	..	..

DIAGNOSIS

Nos. 1–30.—True rheumatoid arthritis.
31.—Multiple infective arthritis (M.I.A.) (Type Still), albuminuria.
32–33.—M.I.A. (Still), hæmaturia.
34.—M.I.A. (Still ?). chronic nephritis.
35.—M.I.A. (Still).
36.—M.I.A. (Still ?).
37–49.—M.I.A. (Still).
50.—M.I.A. (Still), chronic nephritis.
51–55.—M.I.A.
56.—M.I.A. (Still), chronic nephritis.
57–58.—M.I.A. (Still).
59–61.—Chronic arthritis.
62–64.—Arthritis gonorrhœa tarda.
65–67.—Arthritis urethritica.
68.—Arthritis urethritica; subchronic prostatitis.
69.—Arthritis urethritica; chronic proctitis hæmorrhagica.

The 23 per cent., however, must be related to certain significant factors—the patient's age, sex, and duration of the disease, at the time the investigation was made. We shall add two others, the incidence of anacidity in the various types of arthritis, and patient's age at the onset of the disease.

Lottrup and Keefer and Bloomfield have explained the arthritis anacidity as a senile achylia. Taken all together—we shall later discuss conditions within the different groups—this would seem to be very plausible. The age-distribution of our series is shown in Table II.

TABLE II

Age-distribution of all Types of Arthritis

Age (years)	0–19	20–29	30–39	40–49	50–59	60
Total cases	2	6	8	20	24	9
Achlorhydria cases ..	—	—	1	5	7	3
„ (per cent.)	—	—	12	25	28	33

This corresponds quite well with that of Keefer and Bloomfield.

As has been stated, among our patients there are almost twice as many females as males (45 and 24). The excess might thus be a result of a corresponding excess in the number of females. In a large series of cases, Hartfall has examined the incidence of achlorhydria in the two sexes at various ages, and found—after excluding patients with pernicious anæmia, gastric carcinoma, and the consequences of stomach operations—a group called "residual achlorhydrias" in which there is a noteworthy rise in the incidence of achlorhydria after the age of 40. Hartfall's material seems to be directly comparable with ours; in any case, his figures cannot be assumed to be too low. The percentages we have found among the females in our series, compared with Hartfall's, are shown in Table III.

TABLE III

Comparison with Normal Age-groups

THE AUTHORS' SERIES (ARTHRITIS)

Age (years)	0–19	20–29	30–39	40–49	50–59	60
Females	1	2	7	10	18	7
Achlorhydria (per cent.)	—	—	—	40	27·9	28
				32·1		
HARTFALL'S SERIES (NORMALS)						
Females	26	162	269	285	264	110
Achlorhydria (per cent.)	7·7	6·2	7·6	15·4	16·3	23·6
				15·8		

On comparing the age-groups 40–59 in the two series we find in ours 32·1 per cent. achlorhydria as against 15·8 in Hartfall's, which here is regarded as a "normal" series (see below). The difference, 16·3 per cent., presumably corresponds to about 2–3 times the standard deviation, which may mean a significant difference, though it necessitates investigations of a deeper character. We may thus say that even if the incidence of anacidity in our series lies only slightly above the normal, it is so high in certain age-groups that it would be warrantable to examine that point more closely.

Turning now to the duration of the disease, which according to Borries may govern the relatively high number of achlorhydrias among these patients, we find the following. The increase in our material entirely lacks the smooth proportionality characterising Borries's, the figures in the periods > 2–8 and > 8–30 years being almost equal.

Length of history (years) ..	0–2	> 2–8	> 8–30
Achlorhydria (per cent.)— Author's series	13	29	31
Borries's series	8	15	33

From Table I., which comprises all cases, tabulated according to age, diagnosis, &c., it will be seen at once that it is in one particular group, true rheumatoid arthritis, that we find the highest proportion of achlorhydrias. In that group there are 30 patients, and of these 11 (36 per cent.) have achlorhydria; among the other 39 are only 5 patients with anacidity (12·8 per cent.) It might be thought that this was a result of these groups being mostly younger, but an age-distribution such as this corresponds exactly with what might have been expected from Hartfall's results. Actually, however, the two series are not directly comparable, as the true rheumatoid cases include such a great preponderance of females (28) that the result becomes distorted for that reason alone. (It is curious that of the two males one had absolute achylia and the other hypochylia verging on achlorhydria)

The age-distribution of the true rheumatoid forms is as follows:—

Age (years)	20–29	30–39	40–49	50–59	60–69
Total cases	1	4	7	13	5
Achlorhydria cases ..	—	—	5	5	1
„ (per cent.)	—	—	70	38	20

It is striking how the cases group themselves about the ages 40–59 and how high the proportion is in these two decades.

In an endeavour to find out the statistical significance of the high anacidity percentage we have established for this disease, we have tried to find a "normal figure" for comparison. To us it seems that we have such a figure in Hartfall's series, which was from a hospital, and included a number of different diseases. If we take his group of "residual achlorhydrias" we get a numerically very large, well-examined series which, we consider, may be compared with ours. We have compared only the achlorhydria percentages for females of the age 40–59 years, females being greatly preponderant in our material and these age-groups occurring most frequently among our patients. In this age-group Hartfall has examined 549 women and found achlorhydria in 87 (15·8 per cent.) of them. We have examined 18 women of the same age with 9 (50 per cent.) anacidities. If Hartfall's figures are applicable as normal figures for comparison with ours, we get a difference from our achlorhydria cases expressed as a percentage in the age-groups concerned of 34·2 ÷ 8·6 (the standard deviation on the normal figure for 18 individuals). Thus the difference is very nearly four times the standard deviation, and therefore it seems justifiable to regard it as being more than accidental.

Then is it possible to find the explanation in the duration of the disease in patients with true rheumatoid arthritis? Arranged in duration periods the series appears as follows:—

Duration (years)	0–2 ..	2–8 ..	8
Achlorhydria (per cent.) ..	28 ..	38 ..	40

The rise in percentage is too small to justify an explanation as mentioned above.

As it appears that anacidity in true rheumatoid arthritis cannot as a rule be regarded as a result of the duration of the disease, it would seem warrantable to rearrange the distribution into age-groups to the point of time at which the disease set in; for it will be of some interest to see whether the steep rise we found in the number of achlorhydrias in the 40–59 years' group will reappear under the new arrangement.

Age (years)	20–29	30–39	40–49	50–59	60–69
Cases	4	7	8	9	2
Achlorhydria cases ..	—	3	4	4	—
„ (per cent.)	—	42	50	44	—

We see how the curve of the age-distribution is straightened out, and we find that the achlorhydrias distribute themselves evenly over the middle age-groups, where, as might be expected, the main bulk of the cases are to be found.

Among all the other arthritis patients we have found only five cases of achlorhydria. This figure corresponds very well with what we find in the normal group. Distributed according to age it appears as follows:—

Age (years) ..	0–19	20–29	30–39	40–49	50–59	60
Cases	2	5	4	13	11	4
Achlorhydria ..	—	—	1	0	2	2

If any significance at all is to be attached to such small figures it must be that they show an increase in the number of achlorhydrias with increasing age. According to duration of the disease the result is:—

Age (years)	0–2	> 2–8	> 8
Cases	17	13	9
Achlorhydria cases	1	2	2
„ (per cent.).. ..	6	15	22

Actually a rise in the frequency proportional with the duration of the disease. The figures are so small, however, that it is extremely doubtful whether any conclusion can be drawn from them.

COMMENTS

In principle we may say that, taking proliferative arthritis cases all together, we find a slight but by no means convincing increase in the number of achlorhydrias among them when compared with normal individuals in the same age-groups. The increase is greatest where females are concerned, and in the total material lies so high in the age-group 40–59, compared with a normal figure that there is a possibility of definite pathological significance. A more exact examination of the material shows that we find much more achlorhydria among the true rheumatoid arthritis patients, where females are pronouncedly preponderant. On making a comparison with the aforesaid "normal figure" for females of the age 40–59 years, we find a difference so great that it can hardly be based upon chance. In addition, the distribution of the anacidity shows that, as far as the true rheumatoid forms are concerned, there can be no talk of senile achlorhydria or of achlorhydria caused by the duration of the disease.

One investigator who early realised the possibility of gastric anacidity in relation to chronic arthritis is Hurst. He considered the explanation to be that in these patients the gastric secretion had lost its power as a bactericide and therefore could offer no resistance to the passage of bacteria from the mouth through the stomach. He believes that all rheumatoid arthritis is a result of focal infection, usually from the tonsils but often from the teeth or the sinuses, and he holds that in the great majority they can be treated effectively by prompt radical treatment of these foci. But should it happen that the infection can pass to the gastro-intestinal tract via an achlorhydric stomach, there will arise the possibility that, instead of a limited focus in tooth, tonsil, or wherever it may be, we will get a diffuse infection of the intestine with the consequently less favourable conditions for treatment and great possibilities of resorption. Without wishing to dwell too long on Hurst's views, which we do not entirely share as regards his belief in the part played by focal infection as a sole cause of these forms of arthritis, we consider we ought to mention them, for they seek to explain these matters on the basis of a definite fundamental opinion.

If we go through our arthritis patients and especially those with true rheumatoid arthritis, we find like Hurst that on the whole they have been severe cases, which, if the disease has lasted several years, result in very great deformities, often quite bizarre in appearance. But apart from the achlorhydria we find nothing particular in these patients to characterise them and separate them distinctly from those who, whilst suffering from the same disease, have no abnormality of gastric secretion. Thus, as a result of the investigations of this series, there is no reason for regarding achlorhydria, in cases of true rheumatoid arthritis, as a reflection of some peculiarity of the patient. One must rather believe that it is a phenomenon which, in a certain number of cases—and more frequently than one would expect—is found together with, and possibly predisposes to, this disease, whose ultimate causation is unfortunately as yet unknown to us. But it seems that a defect of such frequent occurrence in an organ so important as the stomach may easily be of far-reaching significance—whatever its nature may be.

SUMMARY

The gastric secretion of 69 patients suffering from chronic and subchronic arthritis has been analysed with the aid of Ewald's test-meal and the histamine fractional test-meal.

A relatively large number of histamine-refractory achlorhydrias was found among patients suffering from true rheumatoid arthritis—36 per cent. in all—while the number in the other group of arthritic patients corresponded to what is found in an ordinary hospital series of patients.

The high incidence of achlorhydria among patients with true rheumatoid arthritis cannot be explained on the basis of what we know about that among women in the same age-groups, nor can it be explained as a result of age or of the disease duration.

Achlorhydria does not seem to be associated with any particular subgroup of true rheumatoid arthritis.

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CLINICAL AND LABORATORY NOTES

A CASE OF PICK'S DISEASE

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Reports of successful treatment by operation has renewed interest in Pick's disease (chronic adhesive pericarditis). The following case is of interest because, although it had many of the features associated with chronic constrictive pericarditis, the symptoms were not in fact caused by pericardial disease but by fibrosis in the posterior mediastinum, and below the diaphragm, which obstructed the inferior vena cava.

The patient, a girl aged 16, complained of enlargement of the abdomen and increasing breathlessness for five years. These symptoms had prevented her from walking more than a few steps at a time for the last six months. For two years she had had a cough with which she had frequently brought up blood-stained sputum. She had had scarlet fever and jaundice at the age of 6, but there was no history of rheumatic fever.

On examination there was massive ascites, considerable œdema of the legs, a large lumbar cushion, and slight œdema of the arms. The lips and finger nails showed slight cyanosis, but there was no clubbing of the fingers. The pulse was regular at 90, and the transverse diameter of cardiac dullness somewhat increased. The heart sounds were normal, and there were no murmurs. There were many moist sounds at the bases. The blood pressure was 105/70. There was no visible distension or pulsation of the veins in the neck, no albuminuria, and no jaundice. The abdomen was very tense, but after 4 pints of ascitic fluid had been drawn off it was possible to feel the liver edge 4 in. below the costal margin. The spleen was not palpable. Radiography of the chest showed much congestion of both lungs and a slight increase in the transverse diameter of the heart; there was no visible calcification in the pericardium. No gross abnormality was apparent in the electrocardiogram, but the voltage was low, and the T wave inverted in lead III.

Course.—The patient was kept in hospital for eight weeks before operation. During this period the abdomen was tapped on five occasions, as much as 7 pints being removed at one time. The pulmonary congestion and œdema of the legs were very greatly improved, and she was no longer cyanosed.

Operation was undertaken by Mr. M. F. Nicholls with a view to relieving the obstruction to the venous return to the heart. Omnopon, scopolamine, and Avertin were used as premedication for gas-and-oxygen anæsthesia. The anterior surface of the pericardium was displayed by resection of the medial 3 in. of the fourth, fifth, and sixth costal cartilages, and removal of rather more than half the breadth of the sternum in this area. The left pleura was freed and retracted laterally unopened. The pericardium was slightly thickened; its layers were uniformly but not densely adherent except for a few isolated firm bands. During the process of separation minute hard spicules, presumably of calcium, were felt. The anterior surface of the pericardium was cut away and both borders and the diaphragmatic surface were freed. In the end the hand was passed within the pericardium posterior to the heart, which was felt to have been almost completely freed from adhesions. As far as could be felt and seen the great veins did not appear to be seriously constricted by the remaining pericardium. The thickening of the pericardium was in fact held to be insufficient to account for the patient's symptoms, for it did not appear to obstruct the great vessels and seemed barely sufficient to hamper diastole of the heart.

After the operation the patient was nursed in an oxygen tent. Four hours after operation, before she had regained consciousness, she developed acute pulmonary œdema. This was treated energetically and subsided 12 hours later, but the patient was very exhausted. She became gradually weaker and died four days after operation with a terminal acute pericarditis.

Post-mortem examination.—The obstruction to the venous return to the heart was found to be due to a dense mass of fibrous tissue surrounding the inferior vena cava. It was maximum at the level of the diaphragm. The posterior surface of the pericardium was also fibrotic, but did not seem to occlude the lumen of the vessels as they entered the heart. The fibrosis also extended below the diaphragm and obstructed the hepatic veins as they entered the inferior vena cava. Within the liver these veins were very grossly dilated. There were fibrous adhesions between the stomach and the diaphragm. The liver was enlarged and cirrhotic, but did not show any thickening of its capsule. The spleen was fibrous and about twice its normal size; there was one small patch of "sugar icing" on it. The parietal peritoneum was grossly thickened, and there were several pints of ascitic fluid. The heart was small. The remaining pericardium was about a millimetre thick with many small spicules of calcification. It contained a purulent fibrinous exudate, which appeared to be of very recent origin. The pulmonary veins were not obstructed, but there were dense adhesions between the two layers of pleura and between the pleura and the pericardium. Both lungs showed hypostatic pneumonia at the bases and terminal œdema. No other abnormal findings were noted.

White [1] has lately drawn attention to the identity of chronic constrictive pericarditis or Pick's disease as distinct from polyserositis or Concato's disease. In Concato's disease effusions are found in several serous cavities; the pleura and pericardium are those usually involved, but sometimes the peritoneum is also affected. The essential pathology of Pick's disease is the fibrosis, with or without calcification, about the heart and great vessels. It is often accompanied by polyserositis, and in some cases the fibrosis appears to be due to an inflammation which was part of a polyserositis. The main feature of the case recorded here was the fibrosis about the great vessels, though it also showed chronic inflammatory changes in the peritoneum and pleuræ.

The operation of partial pericardiectomy has recently been performed for chronic constrictive pericarditis, and in several cases has brought about a dramatic cure. In America Beck [2] has reported 10 operations with 5 cures and 1 other improvement, Burwell [3] 7 operations with 5 showing considerable improvement, and White [1] has reported 12 operations by Churchill with 6 cures and 1 other improvement. In this country Roberts [4] has reported 1 successful operation.

Most of the signs and symptoms described above are characteristic of chronic constrictive pericarditis, in particular the progressive ascites without cardiac failure commencing in youth, the absence of a large heart or valvular disease, the low blood pressure and the low voltage in the electrocardiogram, and the enlarged liver with a comparatively normal spleen. There was however little to suggest obstruction to the superior vena cava, for there was no distension

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of the veins of the neck and the small amount of œdema of the hands soon cleared up with rest. The presence of pulmonary congestion (not a typical feature of the disease) was attributed to obstruction either to the pulmonary vein or to the dilatation of the heart in diastole. The combination of obstructed venous return to the heart from both the lungs and the inferior vena cava, even in the absence of signs of obstruction of the superior vena cava, suggested that the pericardium might be at fault, and it was on this account that operation was undertaken.

Even at post-mortem it was difficult to account for the signs of pulmonary congestion. The small degree of thickening of the pericardium may have been some hindrance to the venous return, and the enlargement of the abdomen undoubtedly embarrassed the action of the diaphragm; but the degree of pulmonary congestion was greater than one would expect from these causes.

The extension of the fibrosis below the diaphragm is unusual. The hepatic veins were far more dilated than any other tributaries of the inferior vena cava, so it must be concluded that the fibrosis obstructed them more than the main trunk of the inferior vena cava. The ascites may have been due in part to obstruction to the lymphatic flow through the diaphragm. Roberts[4] has pointed out that in more typical cases when the disease does not extend beyond the pericardium, some further explanation of the predominance of the ascites over other signs of obstruction to venous return must be sought for. He suggests that the ascites predominates, since the liver is entirely dependant on the blood being sucked out of the liver when the chest expands, whereas all other parts of the body have some additional means of getting blood towards the heart.

My thanks are due to Dr. C. Blaxland Levick and Mr. M. F. Nicholls, under whose care the patient was, for permission to publish this case, and to Dr. John Taylor who performed the post-mortem.

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SIX CÆSAREAN SECTIONS ON THE SAME PATIENT

By John Pemberton, M.B. Lond.

OBSTETRIC HOUSE SURGEON, UNIVERSITY COLLEGE HOSPITAL, LONDON

The following case is not unique of its kind but it has features of interest besides its rarity. During the past 16 years the patient has undergone six classical Cæsarean sections—all performed by Mr. Clifford White—and to-day, at the age of 40, she has five children surviving, the third having died of meningitis at 11 months.

She is an achondroplasiac, and when seen during her first pregnancy in 1920 she was found to have a generally contracted pelvis. Her pelvic measurements are: interspinous, 10½ in.; intercristal, 10¾ in.; external conjugate, 7 in.; and diagonal conjugate, 3⅞ in. Her height is 4 ft. 8 in.

Each Cæsarean section has been done deliberately, about ten days before the estimated date of delivery. At the most recent section, performed at University College Hospital, few signs could be seen of the five previous operations. The abdomen presented a single linear scar. On opening the peritoneal cavity the body of the uterus was found to be adherent only to the abdominal wall; there were no omental or intestinal adhesions. The absence of adhesions can be related to the fact that the previous puerperia were afebrile.[1] The body of the uterus was quite easily freed from the abdominal wall; the placenta was not inserted over the incision through which the fœtus was delivered. There was no perceptible thinning of the uterine wall at the site of the previous sections and only an increase in the density of the tissues, due to an increased proportion of fibrous to muscular tissue, marked where the uterus had been opened. The sound healing of the previous incisions can be attributed to two factors, good coaptation of the wound edges and absence of infection from the wound.[2] Good coaptation was obtained by inserting three layers of sutures—a subendometrial layer of interrupted catgut, a muscle layer of interrupted thread, and a continuous catgut suture to unite the serous surfaces.

Spencer reports a case in which he did the third, fourth, and fifth sections on the same patient.[3] In his technique he used a deep layer of interrupted, carbolised floss-silk sutures, not involving the endometrium, and a superficial continuous suture of the same material. Several years ago Ranken Lyle[4] performed seven successful Cæsarean sections on the same patient, and I understand that before this the same number had been performed by a Swiss obstetrician.

I am indebted to Mr. Clifford White for permission to record this case.

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POISONING BY SODIUM BISMUTH TARTRATE INJECTIONS

THREE FATAL CASES

By J. H. Dowds, M.B., M.Sc.

MEDICAL OFFICER, ROAN ANTELOPE COPPER MINE, LUANSHYA, N. RHODESIA

I have recently encountered three cases in which death has followed injection of sodium bismuth tartrate, an occurrence unusual enough to warrant publication. Two of the patients died in hospital, the third being brought in dead. In all three cases the injections had been given into the subcutaneous tissues of the buttock by a native who had formerly been a hospital orderly and who apparently considered bismuth a cure for all ills. The information about dosage was obtained during court proceedings.

Case 1.—The first patient, a male native 30 years of age, was well nourished and healthy at the time of the injections, which were given on account of some areas of diminished pigmentation on the face, back, and buttocks, which the orderly erroneously informed him were due to leprosy. One 5 c.cm. syringeful of an aqueous solution of neutral sodium bismuth tartrate was injected subcutaneously three weeks before the man was brought to hospital, and again one week before admission. This volume of a saturated solution would contain about 25 grains at room temperature. When he arrived in hospital he was suffering from an intense stomatitis, involving most of the palate, tongue, gums, and lining of the cheeks, which were covered with patches of a dark greenish slough, and bled freely. The whole face was swollen, and the puffiness was especially marked under the eyes. He passed only a few ounces of urine on the first day; it was heavily loaded with albumin and contained 0·000 07 g. of bismuth per 100 c.cm. The stools were dark, but the bowel movements were normal. The pulse was about 90, feeble but regular, and the temperature remained subnormal till death. Treatment consisted in swabbing the mouth with hydrogen peroxide, the use of drugs and warmth to induce sweating, and the administration of diuretics; in addition, sodium thiosulphate grs. 10 was with it. He agreed with what had been said as to generous feeding.

Dr. DOROTHY C. HARE agreed with Dr. Bargen on the value in diagnosis of an accurate history; in a group of cases premonitory bleeding from the bowel gave the clue to a more severe attack occurring later. Medical treatment was likely to give better results than surgical, but only if commenced early.

Mr. TURNER WARWICK suggested that some of the energy manifested in treatment might well be devoted to discovering the cause of the disease.

Mr. R. S. CORBETT referred to two recent cases with a number of complications, which were restored to normal life by ileostomy.

Mr. E. T. C. MILLIGAN feared it must be admitted that neither the cause nor the proper treatment of the disease was yet known. Some of the cases seen in out-patient departments persisted for six or eight years.

REPLY

Dr. BARGEN agreed that the last word had not been said about the disease; but he felt strongly that, whatever else entered into the picture, the deciding factor was the presence of the diplococcus he had described. In every infectious disease there were many predisposing elements. He knew of no investigation which proved him to be wrong in his statement as to the chief causal organism. Much more work was needed on treatment, but it could be said that a method had been evolved which did something substantial for a large group of cases.

SECTION OF MEDICINE

AT a meeting of this section last Tuesday, with Sir CHARLTON BRISCOE, the president, in the chair, a discussion on the

Treatment of Pleural Effusions

was opened by Dr. GUSTAV MAURER (Davos). When a pleural effusion was diagnosed, he said, the clinical picture, in conjunction with exploratory puncture, gave the best clue to the nature of the pleurisy. Bacterial examination and animal inoculation could not be relied upon, but he had found bacilli more frequently after low than after high puncture. Once the diagnosis of tuberculous pleural effusion had been made the removal of any considerable quantity of fluid should, if possible, be avoided during the exudative phase; with a highly inflamed serosa irritated by aspiration a serous exudate might turn into a purulent one. When the exudate lasted more than a few days and the stage of absorption had set in, the fluid should be replaced by air. Tapping without air-replacement might cause collapse or even death, the abrupt expansion of the lung might irritate the lesion or it might mobilise a tuberculous thrombus leading possibly to meningitis; if the original focus in the lung had been subpleural, a purulent exudate or a spontaneous pneumothorax might be produced. Air-replacement avoided these risks and hastened absorption; the speaker said he could not recommend it too strongly in every case of large pleural effusion. In one out of every five of his sanatorium cases previous pleurisy had obliterated the pleural cavity and had made pneumothorax impossible. In these cases air-replacement, continued as an artificial pneumothorax, would have prevented the development of serious tuberculosis. The hydropneumothorax that existed after air-replacement had to be kept up until all the exudate had disappeared. When the lung had partially re-expanded, with just enough gas left to prevent adhesions and to allow refills, radiography and sputum tests should be used to investigate the advisability of maintaining the pneumothorax as a therapeutic measure. In this way small but active lesions might be healed quickly and easily. It was better to continue an observation pneumothorax unnecessarily for some weeks than to be confronted later on with extensive, perhaps bilateral, disease with adherent pleura.

If the fluid became purulent the prognosis was bad. Repeated and complete aspiration of pus might help to diminish the empyema cavity by pleural retraction and symphysis. Thoracoplasty might be necessary but could not be done while the exudation was acute. Mixed infections, which might follow spontaneous pneumothorax, required daily pleural lavage with normal saline and later with antiseptics.

Dr. Maurer said that to him the ordinary clear effusion of artificial pneumothorax was always a problem; the fluid might reduce the volume of the lung by pressure and lead to encapsulation in a thickened pleura which would not expand. On the other hand a progressive pleural symphysis often began in the course of an effusion and might lead to obliteration of the pneumothorax. The fluid should, he thought, be left during the acute stage unless it caused cardiac embarrassment; then, preferably air rather than fluid should be withdrawn. When the temperature had dropped to normal and the exudate stopped increasing, he usually aspirated any large exudates leaving the end-pressure distinctly negative. Because of this continuously negative pressure the pneumothorax lung moved with the respiratory excursions; this massage prevented the visceral pleura from becoming too thick or losing its elasticity altogether. When the exudate had been absorbed the base of the lung was usually found to be adherent to the diaphragm and the lower thoracic wall. At that stage the extension upwards of the symphysis between lung and chest wall should be checked by more frequent and larger refills; if in spite of this it showed a tendency to increase to an undesirable extent a temporary oleothorax should be produced. A pneumothorax lung containing large cavities or basal foci had to be kept collapsed even during the effusion and the intrapleural pressure had always to be adapted to the lesions; but the speaker tended to sacrifice to some extent the ideal collapse during the effusion period in order to make subsequent re-expansion easy. The residual pneumothorax which was seen too often in practice was nearly always the result of maintaining an extreme collapse during the treatment of an effusion. When it occurred, diaphragmatic paralysis might suffice to bring visceral and parietal pleura together. In more extreme cases closure had to be effected by thoracoplasty, for if a permanent pneumothorax cavity remained there was a grave risk of perforation into the lung.

Dr. Maurer had found that when, despite repeated refills, the lung base began to adhere to the diaphragm and chest wall a pleuritis fibrinosa or sero-fibrinosa was always present. Oleothorax in these cases saved the remaining pleural cavity. He allowed the oil to remain in the pleural cavity from four to (at the most) six months. By this time the pleuritis ought to have settled down. The oil, a foreign body, was then replaced with air. Progressive symphysis was in his opinion the only—and at the same time, the very important—indication for oleothorax. He had not seen good results from the treatment of purulent exudates by oleothorax; they required drainage and lavage.

When the mediastinum was mobile, the results of pneumothorax treatment were poor, and an effusion in these cases was often welcome. Unfortunately the exudate seldom formed just where it was needed. In order to fix the mediastinum artificially Dr. Maurer had been injecting 50 per cent. glucose solution into the pleural cavity; it produced bursting and desquamation of the endothelial cells and ultimately adhesions. It was astonishing, he said, to see in practice how much more effective double pneumothorax was rendered by the application of this new principle.

Dr. W. Burton Wood said that trauma was the commonest cause of pleural effusion in the tuberculous. A blunt needle, a drop of spirit on the needle, the injection of cold air, or the tearing of adhesions by positive pressure might each provoke a reaction, and their avoidance amounted to preventive treatment. Many pleural effusions required no active treatment. They were the commonest manifestations of intrathoracic tuberculosis in childhood; they had little effect on health and were only rarely followed by parenchymatous disease; some adolescent pleurisies were of the same type, appearing to be analogous to allergic reactions. For this reason he was not in favour of exposing such cases to further infection, in a sanatorium for example. The presence of a tuberculous focus in the underlying lung in cases of effusion was sometimes assumed, and this had given rise to the practice of gas-replacement and the maintenance of a pneumothorax, for some months, to protect the lung. It was always said that the expectation of phthisis in these cases was 40–50 per cent., but recent figures from Scandinavia suggested that 90 per cent. made a lasting recovery. This was confirmed in his series of 30 cases. The tapping of effusions was unnecessary in some cases in which the fluid would be absorbed spontaneously; in others aspiration would only be followed by further exudation, and there was always the risk of introducing secondary infection. Aspiration with gas-replacement was justified where there was mediastinal displacement or distress. He felt that in the less virulent cases, before instituting closed drainage for the treatment of an infected tuberculous effusion, an attempt to avoid drainage might be made. He had had some success with a gelatin flavine solution which mixed intimately with the pus.

Dr. Geoffrey Marshall pointed out that although an effusion was supposed to act as a splint to the lung, radiography showed that the tuberculous lesions in lungs were commonly at the apex, whereas effusions usually limited movement merely at the base. The occurrence of the primary focus on the side opposite to an effusion cast some doubt on the desirability of routine gas-replacement. In some cases of effusion, he thought, infection spread through the blood stream; some observers had seen multiple pinhead tubercles on the pleura where there was simple effusion. He agreed that secondarily infected effusions should be treated by closed drainage.

Dr. L. S. T. Burrell asked what was the proper procedure on finding the pinhead tubercles mentioned by Dr. Marshall? The question had been raised whether effusions should be aspirated early. He himself left his pleural effusions for a while, for he found that they might recover in 6–8 months, whereas some of the hydropneumothoraces dragged on for a year or more. He usually did an air-replacement after three or four months.

Dr. S. Vere Pearson (Mundesley) said that experience made him hesitate to lay down hard and fast rules. Had anyone discovered whether one type of needle was more conducive to effusions than another? He thought that prolonged continuity of treatment was necessary for tuberculous patients. In view of the dire consequences of a bronchial fistula he felt that the condition of the pleura was of secondary importance to that of the underlying lung.

Dr. Robert Coope (Liverpool) remarked that the Scandinavian figures for effusions which were left alone except for sanatorium treatment were extraordinarily good: 82–90 per cent. had returned to full work. He raised the question whether one should inform a patient that her effusion was probably tuberculous. He thought one should, and that if the patient was willing to devote three months of her life to sanatorium treatment the chances of cure were very great.

Mr. J. E. H. Roberts (London) held that small trickles of blood in the pleural cavity would be enough to produce an effusion and that at times these were inevitable when puncturing the pleura. When he saw the pinhead tubercles, he said, he proceeded unless they were on the part he was going to divide. Drainage by a self-retaining catheter was very satisfactory for cases of secondary infection but required regulated and measured negative pressure. Mr. Roberts showed an apparatus that he used for the purpose and explained that a small degree of suction was best for a small mobile lung but higher manometric readings were suitable for assisting collapse in thoracoplasty. For lavage it was essential to fill the pleural cavity with fluid.

Dr. Maurer, in reply, said that, for the last six years, since he had introduced nicking the skin before inserting a needle, he had seen no case of secondary infection of an effusion.

GLASGOW ROYAL MEDICO-CHIRURGICAL SOCIETY

On Oct. 16th, with the president, Mr. George H. Edington, in the chair, a discussion on

Focal Sepsis

was initiated by Dr. J. A. W. McCluskie and Mr. B. H. Humble, L.D.S.

Dr. McCluskie spoke particularly of focal sepsis in the mouth and its relation to the production of disease in joints, heart, and kidneys. He held that closer coöperation between dentist and doctor would often benefit the patient.

Mr. Humble, speaking on

RESIDUAL INFECTION OF THE JAWS

said that residual infection after the extraction of all teeth could be classified into two types, according to whether or not buried roots remained. Statistics from the Mayo Clinic, Rochester, from New York City, and from London, showed that about 25 per cent. of all people wearing dentures had at least one root left which could only be discovered by X rays. Even a minute portion of a root might cause serious systemic infection. The removal of the root or roots would usually clear up the condition. A post-operative X ray examination of the jaws would be a safeguard to the dentist and the patient and a preventive of future trouble by revealing and causing immediate removal of roots. Residual infection with no buried roots depended on the state of the patient's health, the severity of the operation, and the type of patient. The so-called rheumatic type of person was more usually affected and the patient had probably retained infected teeth for such a long time that his recuperative powers were not equal to the task of resisting the infection after the extraction of the teeth. Such conditions as arthritis, antral empyema, and sciatica had been cured after the treatment of the residual infection. Diagnosis was not easy. If dentures were inserted the patient felt uncomfortable and complained of *soreness of the alveolar ridge, usually in a distinct* area. Radiograms might show any degree of rarefying or sclerosing osteitis. There might be only haziness of the trabeculæ or well-marked persistent areas of apical rarefaction, while the latter condition might go on to residual dental cysts. Where the original infection resulted from marginal gingivitis the bone might fail to form a compact outline, exposing the unjoined ends of the cancellous structures within the soft tissues. The alveolar edge would appear rough and uneven. Curettage of the diseased area was advocated by some authorities, but decried by others on the grounds of uncertainty that all the diseased bone had been removed. Bowdler Henry had introduced treatment by local diathermy with striking results. Talbot believed that residual infection was an indication of general systemic weakness and it was the general condition which should be treated. He used local application to the wounded gums with infra-red rays and general irradiation with ultra-violet rays.

CONGRESS OF "STRUCTIVE" SURGERY

THE first European Congress of Structive Surgery was held in Brussels on Oct. 3rd and 4th under the presidency of Dr. M. Coelst. The hon. president was Dr. J. F. S. Esser (Monaco) and the hon. vice-presidents Sir Harold Gillies (London) and Prof. Cardenal, rector of the University of Madrid.

In his presidential address Dr. COELST began with a tribute to Dr. Esser as founder of the institute of structive surgery that bears his name. He also spoke warmly of the help given him by Mr. T. P. Kilner (London) and Prof. Sanvenero-Rosselli (Milan). The term "structive surgery," he said, derived from the Latin *struo* (I build), had been suggested by Dr. Esser and accepted because no other word is comprehensive enough. "Surgery of repair" included only operations where transplantation is required; plastic, an adjective borrowed from the vocabulary of artists, implied only the sliding of the tissues. The term structive, on the other hand, embraced all kinds of procedures for modifying or improving function both in the natural cavities of the body and on its surface. It interested every kind of specialist, for all were called upon to bring their knowledge and experience to the solution of the new problems that it faces.

Dr. ESSER expressed his pleasure that this first meeting should bring illustrious representatives of structive surgery not only from other parts of Europe but from distant parts of the world. It had also collected specialists from other branches of medicine, the reason being that structive surgery is the first and only specialty that does not concentrate on a limited field but wants to work in and with the other surgical specialties. Its sole end was to aid and to treat those most unhappy of human beings, the crippled, the malformed, and the mutilated. Dr. Esser here remarked that æsthetic (cosmetic) surgery, a branch of structive surgery, has had little sympathy from the medical profession and has indeed been somewhat despised because some of its exponents have sought to make their reputation through the popular press and have pursued pecuniary interests rather than the relief of humanity. "We propose," he said, "to suppress with all our power such practices."

Dr. VICTOR CHEVAL spoke of the structive operations performed in work on the nose, throat, and ear, and added his praise to the founder Dr. Esser. "The apostle of structive surgery, he goes from country to country gaining adherents; he fixes the rules of the discipline and gives it a suitable name; he disperses prejudices and has removed my own scruples. I avoided the conferences of cosmetic surgery, but I am present at the first European conference of structive surgery."

Prof. REMIJNSE (Rotterdam) pointed out that general surgery is not necessarily *de*structive surgery. He agreed that the new name had a larger significance than "surgery of repair," and he included within its scope not only the correction of acquired and congenital deformities but also of instabilities and even abnormal functions. He warned his hearers of the danger (inherent in specialties) of limiting themselves too completely to their own branch. "I find bonds everywhere unbreakable between general surgery and structive surgery; the elevation of the one will be followed by progress in the other."

Dr. HEGER GILBERT (Brussels), speaking as professor of forensic medicine in the University of Brussels, dealt among other questions with the reason why cosmetic surgery is so severely judged. "It is not enough," he said, "for a doctor in undertaking a purely cosmetic operation to convince *himself that he is obeying a physical* or *surgical* indication: it is essential that he shall also be in a position to demonstrate it."

Dr. WATRY, director of the Eastman Institute in Brussels, said that the aim of structive surgery, like that of dental surgery, is to produce harmony between form and function rather than to satisfy vanity or fancy. At the same time, he said, the rôle of dentofacial orthopædics is preventive, and it may even exclude surgery: though it may, on the other hand, require the surgeon's help for its completion.

Dr. DUPUY DE FRENELLE (Paris) referred to the great work of Lambotte in laying the foundations of osteosynthesis. He reviewed the technical methods which orthopædics contribute to structive surgery.

Many communications were made to the congress, and they will be published in full in the *Bulletin* of the Société Européenne de Chirurgie Structive. They included a paper by Mr. KILNER on skin transplants, one by Mr. W. E. M. WARDILL (Newcastle) on the treatment of cleft palate, and contributions from among others, Dr. MALINIAK (New York), Dr. PORTMANN (Bordeaux), Dr. ROY (Montreal), Dr. PONT (Lyons), Dr. JIANO (Bucharest), Dr. BOURGUET (Paris), Dr. WARREN PIERCE (San Francisco), Dr. JULIA DE LARA (Havana), Dr. MICHALEK-GRODZKI (Warsaw), and Dr. PRUDENTE (Sao Paulo). In the course of the congress a visit was paid to the Hôtel de Ville where the members were entertained by Monsieur Max, the burgomaster, and there was an official luncheon at which Mr. Wardill replied for the English representatives.

It was announced that the next meeting will be held next year in London. The officers will be Mr. Kilner, president, and Prof. Sanvenero-Rosselli (Milan) and Prof. Dufourmentel (Paris) vice-presidents. Sir Harold Gillies will be the hon. president.

REVIEWS AND NOTICES OF BOOKS

Textbook of Obstetrics

For Students and Practitioners. By FREDERICK C. IRVING, A.B., M.D., F.A.C.S., William Lambert Richardson Professor of Obstetrics, Harvard University Medical School; Visiting Obstetrician, Boston Lying-in Hospital. London: Macmillan and Co., Ltd. 1936. Pp. 558. 25*s*.

THE book is designed as a concise text-book for students and practitioners, and therefore accuracy in minor detail as well as in major fact is to be expected. This standard is maintained throughout the volume. The substance of this book is based essentially on well-established fact and teaching which has stood the test of time. The student will find here all that he needs to know of the subject of obstetrics and, in addition, material for revision of the relevant embryology, anatomy, and physiology. Prof. Irving has realised, and utilised to the fullest extent, the value of diagrams: these are in black and white, and show the details which they are intended to illustrate to good advantage. The section on the mechanical side of labour is exceptionally well furnished with diagrams.

The complications of pregnancy are ably dealt with in chapters which contain many details of interest and practical use to the practitioner. There is much here that may seem at first new technique to the average reader in these islands, but consideration of the book as a whole will show that the novelty is not so much in the material as in the method of placing known facts before the reader. The operative side of obstetrics takes up several chapters: the procedure advised is mostly sound and even classical, and the only criticism we would offer is in connexion with minor details in certain of the forceps manœuvres. An appendix contains X ray photographs demonstrating the use of this method of investigation in midwifery.

This book will be useful to practitioners and also to students.

A Short Practice of Surgery

Third edition. By HAMILTON BAILEY, F.R.C.S., Surgeon, Royal Northern Hospital; and R. J. MCNEILL LOVE, M.S., F.R.C.S., Surgeon, Royal Northern and Metropolitan Hospitals. London: H. K. Lewis and Co., Ltd. 1936. Pp. 995. 28*s*.

THE third edition of this book appears only 18 months after the second. Its popularity may be readily understood, since its contains an astonishing amount of information presented in a clear, dogmatic style; and since words are not wasted the print is for the most part of the large size beloved by the not over-industrious reader. Matters of special interest which such persons cannot be expected to care for are set up in smaller type. The size of the volume, though not unwieldy, could with advantage be reduced still further by the omission of a large number of illustrations which show the more advanced stages of disease, and the freaks and curiosities which are of no importance to the undergraduate student. It is the stated intention of the authors to employ illustrations to lighten the text, but this labour-saving process may be carried too far.

The teaching is on the whole sound and up to date, and the care which has been taken to indicate the value of many of the more recently introduced radiographic and chemical aids to diagnosis is praiseworthy. Pathology has been reduced to a minimum and might almost be omitted altogether, since the student now finds it necessary to use separate text-books dealing entirely with this subject. But errors of development should be described more accurately and in greater detail, and we were unable to find any reference to such common defects as pre-auricular and pilonidal sinuses. Since the authors have tried to compress the maximum of information into the minimum of space they have had to fall back on lists. This is always a dangerous procedure, but when a list of the cause of gangrene is headed by Raynaud's disease, merely because R happens to be the first letter of a well-known mnemonic, it becomes an unworthy one. The book is concerned throughout with facts rather than with the scientific interpretation of clinical phenomena and the principles upon which rational treatment is based. For this reason we feel doubtful whether its teaching, so readily assimilated, can be of permanent value to the student; but so long as it helps him over his immediate stumbling-block, the qualifying examination in surgery, its popularity is assured.

Oxidation-Reduction Potentials in Bacteriology and Biochemistry

Fourth edition. By L. F. HEWITT, Ph.D., B.Sc., F.I.C., Biochemist at the Belmont Laboratories, Sutton, Surrey. With a foreword by the Medical Officer of Health. Published by the London County Council. Agents for sale: P. S. King and Son, Ltd., 14, Great Smith-street, Westminster, S.W.1. 1936. Pp. 101. 2*s*.

SINCE its first appearance in 1931 three new editions of this useful monograph have appeared. They form a record of steady advance rather than of sensational progress; but a considerable number of new references are given in the present edition, bringing the extensive bibliography up to date. Details noted are the extension of the tables of oxidation-reduction indicators to include useful new dyes, and new work on yeast potentials and on the vitamin-like growth accessory substances required by micro-organisms. Such homely subject as the influence of oxidation-reduction on the keeping properties of bottled beer and of Cheddar cheese are instances of the applications of this knowledge. In the section on pyocyanine, the later work of Michaelis indicating a monomolecular structure in solution might receive mention. The book continues to be a clear and up-to-date survey of an important field of bacteriology and biochemistry.

Scientific Progress

Six Halley Stewart Lectures for 1935. London: George Allen and Unwin Ltd. 1936. Pp. 210. 7*s*. 6*d*.

THE lectures are by Sir James Jeans on man and the universe, Sir William Bragg on the progress of physical science, Prof. E. V. Appleton on the electricity in the atmosphere, Dr. E. Mellanby on progress in medical science, Prof. J. B. S. Haldane on human genetics and ideals, and Prof. Julian Huxley on science and its relations to social needs. They vary in quality, but they are all good and well worth careful reading. And to the attentive reader they are something more than a statement of the claim that science has revolutionised our material life and might well convulse it if we are not careful—a claim of which the public must by now be a little tired. The real "wonders of science" are immaterial; it is worth pursuing because of the emotional and spiritual enrichment which it brings into our lives, and in exhibiting this truth the present batch of lecturers have certainly forwarded the ideals of the Halley Stewart Trust.

Basal Metabolism in Health and Disease

Third edition. By Eugene F. DuBois, M.D., Professor of Medicine, Cornell University Medical College, New York. London: Baillière, Tindall and Cox. 1936. Pp. 494. 22s. 6*d*.

The determination of basal metabolic rate, although regarded in most American hospitals as an almost indispensable aid to diagnosis, has not in the past found general favour in this country. This reluctance to adopt a measure which admittedly needs room, money, and expert technical assistance in no small measure may perhaps be partly due to a lower incidence of thyroid disease in England. But it is also a result of that conservative attitude of mind which believes that what cannot be measured accurately should not be measured at all. However, the days are past when an estimation of basal metabolism was of little value, except to confirm a clinical diagnosis of hyperthyroidism or myxœdema. Recent advances in endocrinology, such as the discovery of the thyrotropic principle of the pituitary and the recognition of the significance of syndromes like basophilism and Simmonds' disease, have greatly widened the scope of the test, and it would seem that the necessary apparatus must form part of the equipment of any hospital which claims to be progressive.

The third edition of Dr. DuBois' book accordingly appears at a useful time. It is no mere technical handbook. Indeed, although the principles underlying the various procedures for determining the basal metabolic rate are considered at length, details of technical manipulations have been purposely omitted. Nor is it just a catalogue of diseases in which abnormal gaseous metabolism has been observed. Dr. DuBois has taken a very broad interpretation of his title, and has written a searching and valuable review of a complex but important subject. He has himself been intimately concerned in the study of metabolism for many years, and no one can write with greater mastery of the subject.

British Journal of Surgery

The October issue (Vol. XXIV., No. 94) contains the following papers :—

Three Cases of Gloangioma or Angioneuromyoma (Painful Subcutaneous Tubercle). By W. Arthur Mackey and Alan C. Lendrum (Glasgow). The neoplasm arises from the specialised arteriovenous anastomoses of the skin, the commonest site being subungual. Pain may be extreme or absent, and there may be associated sympathetic disturbance. The histology is characteristic and the treatment is excision.

The Problem of Anuria: a Review of Recent Work on Renal Physiology with Reports of Two Cases. By Alan W. Cubitt (London). The author believes that the unobstructed kidney in "reflex" anuria may be healthy, its loss of function being explicable as a reflex change in intrarenal pressure, possibly hormonal in origin. The afferent path being nervous, spinal anæsthesia is suggested as a form of treatment.

Some Contributions to the Causation, Pathology, and Treatment of Duodenal Ulcer and its Complications. By T. H. Somervell and I. M. Orr (South India). Vitamin A is regarded as a most important cause of duodenal ulceration. In treatment, as opposed to prevention, gastro-enterostomy is advocated as the method of choice, with high partial gastrectomy when the acidity is high.

Congenital Disc-shaped Lateral Meniscus with Snapping Knee. By D. Stewart Middleton (Edinburgh). Three personal cases are recorded, all in young people under the age of 18. The relationship to trauma and the importance of ridge formation in the disc are discussed.

Some Examples of Disease of the Vertebral Column Found in Skeletons of Ancient Egypt: a Contribution to Palæopathology. By L. R. Shore (Cambridge). The specimens described suggest that tumours, tuberculous caries, and spondylitis existed in Ancient Egypt under conditions that allowed of a marked degree of healing.

Multiple Arthritis in Presumably Tuberculous Subjects: Difficulties in Diagnosis and Treatment. By Douglas H. Collins and Charles Cameron (Leeds). In 9 out of 12 cases, non-specific arthritis was the final diagnosis, although several of the patients were known to have visceral tubercle. The results show that immobilisation is harmful in chronic non-tuberculous arthritis.

Gravity Drainage of Pelvic Abscess. By A. Lee McGregor (Johannesburg). The complications due to prolapse of an intestinal loop, to spread of infection to the perivesical connective tissue, and to wrong diagnosis are described. Rules for safety in the operation are formulated.

Myomata of the Œsophagus. By J. Dudfield Rose (Durham). The tumours caused fatal stenosis in a man of 74. The author reviews 49 recorded cases.

Traumatic Rupture of the Urethra: Eight Personal Cases, with a Review of 381 Recorded Ruptures. By A. Simpson-Smith (London). The details of treatment are considered. Suprapubic drainage is advocated for all cases, and the importance of immediate treatment in avoiding sepsis is urged.

Tuberculosis of the Stomach Causing Hour-glass Deformity, with Complete Squamous Metaplasia of the Upper Loculus. By G. W. Watson, E. R. Flint, and M. J. Stewart (Leeds). Complete gastrectomy was performed in the belief that the case was one of malignant growth. Recovery was good.

Hallux Valgus: a Comparison of the Results of Two Operations. By Eric I. Lloyd (London). In-patients with bilateral disease, excision was done on one side of the head of the first metatarsal and, on the other, of the base of the first phalanx. The results did not favour one operation above the other.

Pseudotuberculoma Silicoticum. By K. C. Eden and J. Herbert-Burns (London). Particles of grit entering a wound of the elbow gave rise, 16 years later, to the fibrous tumour without caseation.

Embolectomy on the Vessels of the Extremities. By Einar Key (Stockholm). An account of 48 operations, in more than half of which the circulation was restored. The late results are recorded.

Bilateral Lobectomy for Bronchiectasis. By Ivor Lewis (London). A successful operation is described in a girl of 17. The procedure is described in detail. The one-stage technique was employed, with water-seal drainage through a low wound; the pedicle was closed by mattress sutures.

Nerve-Grafting. By F. H. Bentley and Margaret Hill (Research Laboratories, Royal College of Surgeons of England). Experiments on cats show that grafts of fresh or degenerated nerve can be used successfully to bridge gaps of 3 cm. in nerves. Technique must be directed to minimise the development of scar tissue.

An Experimental Study of the Return of Function after Tendon Section. By D. Stewart (Manchester). Excision of half an inch of the tendons of the superficial plantar flexors in the cat, without either suture or restriction of movement, was followed by complete restoration of normal gait within six weeks. The repair was effected by tissue resembling normal tendon.

THE LANCET

LONDON: SATURDAY, OCTOBER 31, 1936

IODINE AND GOITRE

FOR the past hundred years or more the relation of iodine to endemic goitre has occupied inquiring minds, and there is no doubt that a deficiency of this element plays a fundamental part in the genesis of the disease. Thyroid enlargement has been produced in experimental animals by means of iodine-poor diets, and the administration of iodine prevents the occurrence of simple goitre in the human and its experimental production in laboratory animals no matter what type of goitrigenic agent be employed. COINDET, in 1819, was the first to use iodine in treating the disease and to PRÉVOST, eleven years later, we owe the suggestion that a deficiency in the water-supply might be responsible for its causation. The earliest iodine survey was conducted in 1850–53 by CHATIN, who showed that in goitrous regions of the Alps the soil, water, and foodstuffs were low in iodine. VON FELLENBERG in Switzerland in 1923 and 1924 obtained similar results, and in the same years McCLENDON and his collaborators in the United States noted an inverse relationship between the iodine content of the drinking water and of growing foodstuffs and the incidence of goitre. HERCUS, BENSON, and CARTER,[1] and SHORE and ANDREW [2] in New Zealand found the distribution of goitre to be fairly closely related to the iodine content of the soil, but not to the drinking water. Both VON FELLENBERG [3] and LUNDE [4] showed that the urinary excretion of iodine was much diminished in adults living in a district with a low incidence of goitre. Nevertheless, for a number of years it has been thought that although a deficient iodine intake contributes considerably towards the production of endemic goitre, it is not the sole explanation. McCARRISON and his collaborators [5] in Himalayan India failed to establish any correlation between the iodine content of the soil and drinking water and the incidence of goitre. TURTON,[6] again, has been unable to find any evidence that iodine insufficiency in the diet is a principal factor in the genesis of the disease in Derbyshire. Similar statements are made in reports from other observers.

The problem therefore that confronts investigators is the nature of the other factor or factors in pathogenesis. Some observers consider that the condition is primarily due to an endogenous disturbance in the organism, whereby larger amounts of the iodine-containing hormone of the thyroid are necessary for the metabolic needs of the body. Such a disturbance, usually temporary, occurs at puberty, pregnancy, and the menopause, when goitre is fairly common, although the iodine intake is adequate for normal requirements. In a district in which the environmental iodine content is reasonably high, goitre will develop only in those individuals in whom the endogenous disturbance is especially marked, whereas in districts in which the environmental iodine content is at a minimal level, though adequate for normal purposes, a larger proportion of the population will develop goitre at these periods. Another view is that although there may be little difference in the iodine content of the foodstuffs in a goitrous and a non-goitrous district, as in the survey described in the report reviewed on p. 1073 of our present issue, the iodine may be found in such a form in the foodstuffs grown in the goitrous district that it is absorbed with difficulty by the alimentary tract. To determine the truth of such an hypothesis balance experiments would be necessary. A high calcium intake, though not the essential factor, may be an important contributory one, in that it may bind the iodine in such a manner as to interfere with the absorption of iodine from the gut. Diets low in iodine and high in calcium produce greater thyroid enlargement in laboratory animals than diets low in iodine and low or normal in calcium content. Similarly, in surveys in which no direct relationship has been found between the iodine content of the soil and that of the plants grown on it, as in the recent research by SHORE and ANDREW [7] in New Zealand, iodine may be present in the soil in such a combination that it cannot be utilised by the plant. This possibility requires elucidation, but the task is not an easy one. Such a defect in the soil may possibly be corrected by appropriate manuring. A further view is that a deficiency of fresh vegetables may also be a factor in goitre production, since there is experimental evidence that certain fresh plants have an antigoitrigenic effect.[8]

The careful survey undertaken by the Medical Research Council's iodine committee with an accurate method of iodine analysis is of considerable value, since it shows that iodine deficiency in the foodstuffs is not the sole explanation of endemic goitre in this country and points the way to further research. The problem is of world-wide importance.

ELSBERG'S WORK ON SMELL

THE sixty-fifth anniversary of CHARLES ELSBERG's birth is celebrated by the dedication to him of the August number of the *Bulletin* of the Neurological Institute of New York. Outside the United States he is perhaps best known for his work on the diagnosis and treatment of spinal cord tumours, in which his experience is unique. He was appointed to the Neurological Institute at its foundation in 1909, but despite the passage of many years since that time his vigour is fortunately unabated and at present, as we have already related,[1] he is engaged in investigation of the physiology of smell and the critical testing of this sense in intracranial lesions. The apparatus devised by him for the detection of deviations from normal is remarkably simple and precise. It consists essentially of a cylinder of compressed air, test bottles for the odours, and nose pieces. A measured volume of an odour is injected into the nasal passages under a known pressure during a period of voluntary cessation from breathing. This procedure, which is essentially a test for olfactory acuity, and has been named the blast injection test, enables the detection of the smallest volume in cubic centimetres required for the identification of the odour on bisynchronorhinal injection (olfactory coefficient of the odorous substance) and the smallest volume in cubic centimetres required for the identification when injected into one nasal passage (the minimum identifiable odour, or M.I.O.). Investigations of a series of normal persons has shown that these thresholds are remarkably constant. Thus the normal M.I.O. of coffee is between 8 and 9 c.cm. and that of citral 7 to 8 c.cm.

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[1] Hercus, C. E., Benson, W. N., and Carter, C. L.: Jour. of Hyg., 1925, xxiv., 321.

[2] Shore, R. A., and Andrew, R. L.: Goitre in School Children, Rep. Dept. of Health and Sci. and Indust. Research, Wellington, 1929.

[3] Von Fellenberg, Th.: Biochem. Zeits., 1924, cxlii., 246.

[4] Lunde, G.: Klin. Woch., 1930, ix., 865.

[5] McCarrison, R., Newcomb, C., Viswanath, B., and Norris, R. V.: Indian Jour. Med. Research, 1927–28, xv., 207.

[6] Turton, P. H. J.: Proc. Roy. Soc. Med., 1933, xxvi., 1223.

[7] Shore, R. A., and Andrew, R. L.: Rep. Depts. of Health and Sci. and Indust. Research, No. 45, Wellington, 1934.

[8] Marine, D., Baumann, E. J., Webster, B., and Cipra, A.: Jour. Exper. Med., 1933, lvii., 121.

The inadequacy for anything but the crudest tests of the methods commonly used in clinical practice is probably responsible for our ignorance of the minute anatomy and functions of the different parts of the olfactory tract and of any but the grosser deviations from normal of olfactory sensation in intracranial lesions. **Cajal** believed the anterior commissure to be a sort of olfactory chiasm containing crossed and uncrossed fibres, and his view has been supported by other workers. The frequency with which this part of the brain and the temporal lobes are involved in neoplastic formations suggests that a careful analysis of olfaction may supply much help in the problems of localisation. **Elsberg** himself writes: "The exact areas concerned in the perception and identification of odours have not yet been established, but we have already obtained some evidence which points toward certain areas and we have the hope that further investigations may enable us to establish more exactly the parts of the brain that are concerned in olfaction."[2] The estimation of the duration of fatigue, resulting from the injection of a continuous stream of a selected odour, is an important branch of this technique. Such fatigue appears to be due to a refractory state in parts of the brain itself and is abnormally prolonged in the presence of a large tumour of the brain, and is manifested on the same side. Investigation of 118 patients with suspected tumours of the brain reveals some interesting observations and diagnostic possibilities.[3] Thus the M.I.O. in patients with increased intracranial tension and papillœdema tends to be less than normal, suggesting heightened irritability of some part of the olfactory tract. But when a tumour presses on one olfactory nerve the M.I.O. on that side is higher than normal; thus the presence of this sign in tumours of the pituitary suggests that the tumour has extended beyond the confines of the diaphragma sellæ. In intracerebral tumours and large dural growths that have become buried in the brain the M.I.O. is not raised, but the duration of fatigue is prolonged on the same side as that of the neoplasm.

A further extension of this method of testing lies in the discrimination between olfactory and trigeminal sensation and this promises to be of value in localising posterior fossa tumours. If this should be substantiated by further work it will be of considerable importance, because the distinction of posterior fossa and frontal lobe tumours is occasionally very difficult in practice.

A POLICY FOR CEYLON

The latest report on malaria in Ceylon is written by Lieut.-Colonel C. L. **Dunn** of the Ross Institute, London School of Hygiene and Tropical Medicine.[1] Inevitably it takes as its start the recent malaria epidemic with its 1,500,000 cases and 70,000 deaths, and after pointing out that such epidemics have recurred in the island about every five years and are likely to go on doing so, it looks into the future in the hope of finding some way in which these repeated tragedies may be averted. Colonel **Dunn** agrees with Colonel C. A. **Gill**[2] that relapses played the chief part in the first wave of the epidemic, and believes that they come about from three well-recognised causes: there had been months of drought, in other words, of partial famine for rural inhabitants; when rain gave them the chance to do so these persons had to work in their neglected fields to the point of exhaustion; and with the late rain the temperature fell. Moreover, as the result of five years' freedom from widespread malaria, the people were mostly non-immune and that is a condition in which infective gametocytes are abundant in the blood of those who have relapses. Yet again, with the drought the conditions were particularly suited for the multiplication of *Anopheles culicifacies*, the most important local carrier, for its favoured breeding places are pools such as were left in abundance when streams began to dry up after the failure of two successive monsoons. Circumstances of man and insect were favourable for an epidemic of malaria.

There was never any shortage of drugs for treatment. The mean annual issue of quinine for the last four years had been 13,000 lb.; for the six epidemic months it was 33,000 lb. In addition large quantities of Plasmoquine and Atebrin were made available, mainly to hospitals. Atebrin too often gave rise to abdominal pain, mental derangement, and death; it was unpopular among the villagers, and in 70 cases treated in the Columbo General Hospital where chances of reinfection were the slightest there were, within three weeks, 20 relapses with plasmodia in the blood. For these reasons atebrin was largely given up by medical men in Ceylon. When atebrin and plasmoquine were taken together, their toxicity was higher than when they were given separately. The combination which has, it is held, given the best results in Ceylon and in India has been one of 0·02 gramme of plasmoquine and about 24 grains of quinine daily for twenty-one days, these being doses for adults; but it is pointed out that a mass treatment which needs so long a course is not likely to be a success. Sir MALCOLM WATSON in his preface to the report speaks of the dominant position that quinine still holds in the mass treatment of malaria and hesitates to combine it with synthetic drugs. Further experiments are in progress in Ceylon in the hope of finding a safe and practical mass treatment of this kind which kills gametocytes and does not rely for the prevention of reinfection on the formation of an immunity gained as the result of untreated attacks, for such gain can be got only at the cost of the lives of the many who fail to become immune. Stress is laid on the varying races of plasmodia with their varying virulence, a condition which makes it necessary for each country to find out the drug, and its dosage, that is best suited to its inhabitants and their finances.

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[1] THE LANCET, 1936, i., 907.

[2] Bull. Neurol. Inst. New York, 1935, iv., 493.

[3] Ibid., p. 511.

[1] Malaria in Ceylon. An inquiry into its causes, the therapeutic and other measures used during the epidemic of 1934–35, with recommendations for the prevention of future epidemics. By C. L. Dunn, C.I.E., D.P.H., late Lieut.-Colonel, Indian Medical Service, and Director of Public Health, United Provinces of India. London: Baillière, Tindall and Cox. 1936. Pp. 57. 6s.

[2] See THE LANCET, 1936, i., 322.

The advice given for prevention is far-seeing. Mass treatment is a necessary part of it, and will be the easier in Ceylon in view of the large number of rural hospitals, the excellence of their equipment, and the degree to which the villagers make use of them—matters in which Ceylon is far in advance of anything that DUNN has seen in India. The first need is not, then, for more doctors, certainly not for more of them with a lowered standard of education. Yet Ceylon may learn something from India; in the United Provinces, where there is no dispensary within easy reach of everyone, there are handed over to village headmen, schoolmasters, or other responsible persons, standard malaria treatment outfits, with simple instructions for their use; the 5000 "village aid dispensaries" there have become most popular, and there would be many more of them if funds were available. Wireless health talks are also given in India, and these are most useful where there is a loud-speaker receiver for a group of villages; and there are cinema vans with Indian actors in the films and stories in illustration of health maxims. But above all, there is the need in Ceylon of voluntary work in the villages set going through simple courses of instruction, given in schools and elsewhere by the action of some such body as the Health Publicity Bureau of the United Provinces; for when the value of the work so done has come home to the people, the necessary funds have been found by landlords and by the villagers themselves. Antilarval measures on a large scale must still fall on the Government, and DUNN is satisfied that for mosquito breeding grounds of proved danger in Ceylon the place of oiling can be taken by weekly flushing through the building of weirs with sluice gates. The sites of Government buildings are most important and there should be no hesitation in moving these, and even whole villages, from dangerous to more healthy spots—the latter change having had great success in the United Provinces.

Such are some of the main recommendations for the lessening of endemic malaria in Ceylon, and for preventing its periodical flare-up in epidemic form with terrible waste of health, money, and life. The foundations of this policy are not those of empty theory, for all of them are of proved worth in dealing with a like problem in like conditions.

THE FACTORS OF EPIDEMICITY

THE distinguished German epidemiologist, ADOLF GOTTSTEIN, has recently set out[1] conclusions drawn from nearly sixty years' personal experience of epidemiological happenings. The most striking is that things are seldom so bad as they seem. After the war, Eastern Europe was a prey to diseases the mere name of which, typhus, cholera, small-pox, bring a shudder to any man who knows his medical history. It was little more than a century before that the retreat from Moscow spread havoc by disease through Germany. Those orthodox frontier barriers, unknown to Napoleon's medical officers, which Dr. Gottstein's methodical countrymen could have been trusted to use had they been there, were broken down; the internal sanitary services were starved and disorganised. Who, thinking on text-book lines, could doubt that typhus and cholera at least would slay their thousands? *Dis aliter visum.* In 1919 there were 2 deaths from cholera and 527 from typhus in the Reich.

Then, again, the privations of the war were associated with a notable increase of mortality from tuberculosis. But in those post-war years, for the disorganisation and degradation of which the present rulers of Germany can find no words of contempt sufficiently bitter, the downward trend of mortality from tuberculosis was resumed and soon a point was reached at least as favourable as would have been reached had the pre-war trend been uninterrupted. The sight of means to do ill deeds does not always result in ill deeds being done. Put otherwise, there is much difference between individual and group phenomena. If one injects a mouse with a liberal dose of an organism pathogenic to it, one may be reasonably sure that the mouse will take the disease. If one introduces a number of mice so treated into a herd of normal mice, whether there will be an epidemic at all or, if there is, whether it will be great or small, is a result depending upon many variables. Naturally that is true of men as well as mice. As Dr. Gottstein puts it, the individual problem is often one of only two variables, the group problem one of many variables. To be quite frank, Dr. Gottstein puts it in a good many more words, but that is the substance of his contention. His conclusion is that epidemiologists must use the mathematics of the statistical physicists, for they have to solve a problem involving many variables. Whether Dr. Gottstein is, like Plato, an admirer of mathematics rather than a mathematician, we do not know. Most of us must find the mathematics of relativity too difficult, although the "sets" involved are only of order 4. The epidemiological set would be of higher order and there may be a long interval before an Einstein devotes his attention to epidemiology.

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[1] Acta Med. Scand., 1936, lxxxix., 564.

Nobody would deprecate the mathematical approach, but there is an alternative to which Dr. Gottstein does not refer (many things change in Germany but contempt for all but absolutely gigantic foreign investigators seems to be an unvarying characteristic of the German race)—that is the experimental study of epidemiology, which is mainly an English and American specialty. It is essentially an attempt to make working models of the biological groups exposed to risk of disease and to measure empirically the several factors of epidemicity. It is in its infancy; no man of sense will expect it to provide general epidemiological formulæ or solutions in this generation. But it provides a field of endeavour for those who realise the justice of Dr. Gottstein's contentions and are, like him, anxious to find truth, but know that they will never hold her in a mathematical net which they have not the skill either to weave or to cast.

ANNOTATIONS

THE ENDOCRINOLOGY OF VIRILISM

METHODS of preparing and assaying concentrates of the sex hormones and pituitary hormones found in body fluids are steadily improving, and in consequence the clinical and experimental sides of endocrinology are drawing together. In many directions efforts are being made to supplement clinical observations with estimates of the amounts of the various hormones in circulation or excreted. In the case of virilism some considerable success has been achieved. It has been known for several years that the normal human female excretes appreciable quantities of (as yet unidentified) male hormone or hormones. Recently Levy Simpson, de Fremery, and Macbeth [1] reported that a large excess of the same substance, or a similar one, was present in the urine of 4 out of 7 women with an adrenogenital syndrome, of 3 women with Cushing's syndrome, and of 2 girls with pseudohermaphroditism. The latter were aged 10½ and 16½, but a third pseudohermaphrodite, aged 4, showed no excess of male hormone; neither did a post-menopausal patient, age 56, labelled as Achard-Thiers syndrome. The urine was chemically extracted, and tested on capons and castrated rats. Where possible several specimens of the patient were tested at different periods. Negative results obtained on one or two specimens were not necessarily significant. A later paper [2] from Scandinavia suggests that in some cases of virilism enormous amounts of male hormone (2200 international units per litre) may be excreted. The examination of both urine and blood for male hormone activity would be of great interest, but the quantities of blood required are large.

Whether the excess of "male" hormone found in virilism is responsible for the suppression of menstruation, the hirsutism, and the enlargement of the clitoris is not certain. The site of origin is also doubtful. The pituitary is unlikely, for its secretions are not known to act on castrated animals, and excess of gonadotropic hormone has not been reported in cases of virilism. The ovaries or the adrenal gland must be regarded as the most likely source. Reichstein [3] has described the isolation of a crystalline steroid, adrenosterone, with male hormone properties, from the adrenal, and it is reasonable to suppose that the secretion of this substance might be increased by hyperplasia of the adrenal. Slot,[2] however, failed to find any excess of male hormone in a malignant adrenal tumour. Since œstrone-like and progesterone-like activity may be shown by adrenal extracts,[4] it seems probable that a number of biologically active by-products result from sterol metabolism in the adrenals, and the male hormone-like substance may also be incidental.

It is most reasonable to suppose that the ovary is responsible for the male hormone excreted by normal females. There is little direct evidence that the substance fulfils any function in female mammals, but in the bird, since the comb of either sex is sensitive to male hormone and insensitive to œstrone, it must be assumed that male hormone is responsible for the large red comb of the laying hen.[5] Further, the hen's comb atrophies after ovariectomy, so there is good reason to suppose that in birds at least the ovary actively produces male hormone. It is possible, therefore, that under the influence of pituitary or adrenal tumours the rudimentary androgenic activity of the ovary is increased and effective amounts of male hormone are produced. It must be remembered, however, that a case of virilism occurring after ovariectomy has been reported.[6]

FEVER THERAPY

AN authoritative report on the production of fever by physical means appeared under the auspices of the council on physical therapy of the American Medical Association [7] just too late to be mentioned in our leading article of last week. It is an important pronouncement, too summary in itself to be summarised, which should be read carefully by everyone interested in the subject. The main sections deal with methods of treatment, diseases treated, and the general effects of the treatment. This "has been recommended for no less than fifty different diseases. The results in the majority . . . have not been encouraging, although for a selected few the method of treatment has given promise of great usefulness. . . . The studies which have been made during the last year indicate that the chief sphere of usefulness of this form of therapy lies in the treatment of gonorrhœa, both acute and chronic, and its complications. It would appear that it may be of value in the treatment of syphilis in its various manifestations, particularly when fever therapy is combined with chemotherapy. While there is a suggestion that artificial fever produced by physical means may be helpful in the treatment of intractable bronchial asthma, in selected cases of chronic infective arthritis, chorea, and undulant fever, nevertheless clinical data are not sufficient to permit any final conclusions. Its value in about forty other diseases remains to be proved. It seems to offer promise of considerable usefulness as a therapeutic agent, particularly in the treatment of gonorrhœa." Later it is pointed out that the method "is strictly a hospital procedure; that it is essential that a well-trained personnel be in complete charge of the work; that skilful nurse technicians, who have had at least one month's supervised training, administer the treatments, and that a physician be in constant attendance. Patients to be treated with fever should be selected with as much care as are patients who are to undergo a major surgical operation." This is a warning to the over-enthusiastic, but the precautions are really elementary and are no more than would be required by any treatment involving risk to the patient. "The dangers . . . are extremely rare when the administration of the fever treatments is in the hands of a competent, well-organized group. . . . It would seem from the clinical standpoint that the production of artificial fever by physical means offers certain factors of control and safety which make it appear preferable in some instances to the production of fever by malarial inoculations or by injections of foreign protein." Eighty-five references to original papers are given, and the minimum of claims is allowed. Of these, one or two may be regarded as established, the rest as promising but requiring more numerical backing. Further experiment along certain lines is deprecated as being unlikely to produce any but negative results. Although the scope of the treatment has yet to be defined, there can be little doubt of its having come to stay, and the next twelve months should see it rapidly settling down into its place.

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[1] Simpson, S. L., de Fremery, P., and Macbeth, Alison: Endocrinol., 1936, xx., 363.

[2] Slot, W. J. B.: Acta med. Scand., 1936, lxxxix., 371.

[3] Reichstein, T.: Helv. chim. Acta, 1936, xix., 223.

[4] Callow, R. K., and Parkes, A. S.: Jour. of Physiol., 1936, lxxxvii., 28P.

[5] Callow and Parkes: Biochem. Jour., 1935, xxix., 1411.

[6] Kovacs, F.: Monats. f. Geburtsh. u. Gynäk., 1932, xci., 65.

[7] Krusen, F. H.: Jour. Amer. Med. Assoc., Oct. 10th, 1936, p. 1215.

MAGGOTS AS TISSUE SCAVENGERS

THE maggots of the flesh-fly have been used in America for the treatment of open necrotic lesions ever since the discovery during the late war that they had a beneficial effect on wounds that were accidentally infested. The larvæ, in the actively growing stages, feed on dead and infected tissues, leaving behind relatively clean flesh that has a chance of healing. There are, however, several objections to the use of larvæ, apart from the repugnance felt by a large proportion of patients so treated: the part must be immobilised; fully grown larvæ migrate from the wound and burrow into the dressings to pupate; the dressings need skilled and constant attention; and the method is applicable only to shallow or widely opened wounds, for the larvæ can find no air for their respiration in the recesses of narrow fistulæ or potential cavities. In addition, suitable strains of clean fly larvæ must be kept in cultivation.

The larvæ can take food only in liquid form. This they make by the excretion of proteolytic enzymes, which are capable of acting externally. Several attempts to prepare active extracts of these enzymes have met only partial success in the United States, where the larvæ themselves are in fairly extensive use. Dr. André Maurice, working under Prof. Brumpt in France, has prepared a "dealbumised" extract of larvæ in the form of jelly. In his report[1] no details of the mode of preparation are given, but Brown and Farber[2] have prepared proteolytic pastes by grinding washed larvæ, and it is probable that the "dealbumisation" removes some of the larval debris. Dr. Maurice reports a series of cases cured or greatly improved by use of the jelly. These include an appendicular abscess, chronic osteomyelitis, anal fistula, carbuncles, and ozæna. In most the course of the disease differs little from one to be expected without the use of the jelly, but in some there appears to have been a rapid solution and discharge of necrotic matter from long-standing suppurative processes, followed by quick healing.

The treatment is analogous to the separation of sloughs by the action of mammalian gastric enzymes, but with enzymes of far greater lytic potentiality. The jelly confers most of the benefits of the larval treatment, and the difficulties of breeding, applying and maintaining larvæ, the need for immobilising the patient and the æsthetic objections to wound infestation with maggots disappear. If active preparations will keep, and can be prepared free from bacterial contamination, there is no reason why they should not receive a thorough trial in this country.

VOLUNTARY HOSPITALS AND THE NEW ACT

OPENING a discussion last week at the Medico-Legal Society on the legal status of voluntary hospitals, Mr. C. E. A. Bedwell mentioned a point of possible concern to medical staffs in recent legislation. He was rounding off an historical survey with a reference to the Voluntary Hospitals (Paying Patients) Act of the present session. In summarising last week the provisions of this statute, we noted that the Charity Commissioners can now be asked to sanction (notwithstanding the existence of restrictive trusts) a specified number of pay-beds for a specified period at a specified scale of charges. These last words were perhaps too curt a statement of Section 2 (2) of the Act which Mr. Bedwell cited in full:

> The committee of management may charge such patients as aforesaid for accommodation and maintenance (including such medical and surgical attendance and treatment as is given by the resident staff of the hospital) in accordance with such scale of charges as may be specified in an order.

The wisdom of this subsection, especially in hospitals with medical schools, was, he remarked, extremely doubtful because the resident medical officers ought not to have a claim independently of their chiefs. Attendance upon private patients, he said, was an important part of these officers' training; the senior member of the medical staff was wholly responsible for the care of the patient; a separate payment implied some service rendered apart from the chief to whom the patient was responsible for the payment of fees. As house governor of King's College Hospital, Mr. Bedwell speaks with experience and authority.

One important distinction between voluntary and rate-supported hospitals was further emphasised in the discussion. The rate-aided institution is bound to admit any ratepayer who requires treatment; the voluntary hospital is under no legal obligation to admit patients who apply for treatment. The existence of waiting-lists at voluntary hospitals is based on the power to refuse patients; from the patients' point of view waiting-lists are indefensible.

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[1] Maurice, A.: Med. Press and Circ., Sept. 30th, 1936, p. 290.

[2] Brown, A. W. A., and Farber, L.: Biochem. Jour., 1936, xxx., 1107.

Mr. Bedwell looks forward to the creation of joint committees, representing both the voluntary and the rate-aided hospitals, which will exercise a general supervision over all institutional activities for the benefit of the health of the community. Manchester, he says, has already formed a body of this type, and Liverpool is taking steps in the same direction. He would not, it seems, hesitate to apply to voluntary hospitals the same process of amalgamation as has been applied to English railways since the war. He sees analogies between voluntary hospitals and voluntary schools. In the past thirty years many voluntary schools have been closed and replaced by schools erected by local authorities. He contemplates a like fate for hospitals. When this stage is reached, the Minister of Health must intervene to coördinate facilities. The new Voluntary Hospitals (Paying Patients) Act is a reminder that the English legal system has a profound respect for ancient trusts. The Act will give the Charity Commissioners an active control of several voluntary hospitals. Mr. Bedwell, remembering the precedent of the schools, would like to see the powers of the Charity Commissioners transferred to the Minister of Health who would then have a direct concern in the welfare of the voluntary hospitals. Amendments to give the Minister some definite authority over the transactions which the new Act makes possible were suggested in debate while the Bill was under discussion. They did not commend themselves to Parliament.

DIAPHRAGMATIC HERNIA

THE Richard Stawell oration delivered by Sir Thomas Dunhill at Melbourne in September, 1935, which has only now been published,[1] afforded an opportunity for the orator to pay a tribute to his friend before embarking on an account of diaphragmatic hernia which is much more than a mere amplification of his previous writings on this subject.[2] Sir Richard had himself suggested diaphragmatic hernia as a suitable theme for the oration, and his choice was a wise one because the surgery of this condition illustrates how far we have progressed since the days when the diagnosis of an obscure disorder could be made only by "looking inside." Success in the treatment of hernia through the diaphragm, indeed, demands the most careful preliminary planning of the operation in collaboration with those who have special knowledge of the anatomy, embryology, physiology, and radiology of the thorax and upper abdomen. Every clinician can profit from the study of Sir Thomas's attempt to link the patients' symptoms to the findings at operation. It is not long since we were content to classify these hernias under two headings—congenital and acquired; and surgeons were divided into two camps according to their opinion on the operative technique—some holding that the approach should always be from the abdomen, while others were equally emphatic in their claim that it should always be through the chest. Though further interest in the problem had already been awakened in America, it is only during the past ten years that we find in British journals or books any important references to the subject. Dunhill stands pre-eminent among the surgeons in this country who have added to our knowledge, and his researches have gone to show that there are several varieties of congenital diaphragmatic hernia, and that whereas some may be treated by an abdominal operation, others require a combined abdominal and thoracic exposure. His determination to obtain the X ray evidence which has enabled him to formulate a clear classification of the visceral displacements, and his efforts to interpret precisely the extent and nature of the developmental error underlying each type of hernia should provide both a stimulus and an example to those whose aim it is to advance the science of surgery.

THE HEART IN EXERCISE

RADIOGRAPHIC examination of the heart was attempted as early as 1902 in which year Moritz[1] published some orthodiagraphic observations upon wrestlers and cyclists before and during exertion. His early and unsatisfactory conclusions were supplemented and modified six years later[2] when he demonstrated the apparent anomaly of reduction in size of the heart shadow under stress—an observation subsequently confirmed by numerous investigators. It thus became clear that in healthy subjects maximal exertion does not (as was supposed) cause acute dilatation, and it was concluded that dilatation is to be expected only when the myocardium is seriously impaired. Nevertheless cautious workers have always been aware of fallacies that are hard to avoid in making these cardiac measurements. Thus Vaquez and Bordet,[3] who also found on orthodiagraphy that the heart shadow diminished after work, hesitated to ascribe any significance to the reduction, because the diaphragm in their experimental subjects remained at a lower level after the work, giving the heart a more perpendicular position and hence a smaller diameter of its outline. However, Gotthardt,[4] who in 1929 was the first successfully to register the movements of the heart, employing Stumpf's kymograph, found a diminution of the transverse diameter accompanying an increase of the beat volume and in the amplitude of the left ventricle.

The latest investigators are Faber and Kjaergaard,[5] and they deal at some length with the kymographic examination of the heart during brief work, an application which they claim has hitherto not been attempted. Their experiments were conducted on young healthy adults of both sexes, the work consisting of lifting dumb-bells at the rate of 30 times per minute until fatigue prohibited further lifting; as an average 73 times in the case of males, 30 times in the case of females. A comparatively small increase in pulse frequency (16 per minute) and a slight rise (8 mm.) in the systolic blood pressure were noted. From comparison of their results with those recorded under greater muscular exertion it appears as if the same changes that are demonstrated in the hard-working hearts are demonstrable in these hearts under lesser stress. At the same time as the heart diminishes in diameter, the amplitude of the left ventricle increases about 20 per cent., and that of the right ventricle about 10 per cent. Thus the heart responds to the greater demand by increasing the number of contractions and the amplitude of the individual contractions: the latter condition is presumably the cause of the rise of blood pressure and also of the increase of beat volume. Faber and Kjaergaard point out that the information obtained through radiographic studies is apparently incompatible with the prevailing view of physiologists, which is an acceptance of what is known as Starling's

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[1] Med. Jour. Austral., 1936, ii., 139.
[2] Brit. Jour. Surg., 1935, xxii., 475.

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[1] Moritz, F.: Münch. med. Woch., 1902, xlix., 1.
[2] Ibid., 1908, lv., 173.
[3] Vaquez, H., and Bordet, E.: Radiologie du Cœur, Paris, 1928.
[4] Gotthardt, P.: Fortschr. a. d. Geb. d. Röntgenstr., 1929, xxxix., 1.
[5] Faber, B., and Kjaergaard, H.: Acta Med. Scand., 1936, lxxxix.

Law of the Heart, which explains a temporary dilatation of the ventricles as a consequence of an increased afflux of venous blood during diastole. Starling held that the lengthening of muscular fibres before systole ensured a more powerful contraction; hence the term "physiological dilatation." To reconcile this divergence of physiological and radiological opinion, Faber and Kjaergaard point out the difference in experimental conditions. Physiological views of the circulation are based chiefly upon studies of isolated animal hearts; demonstration of an actual dilatation by clinical working experiments has not been practicable. They also question, a priori, whether physiological dilatation of the heart is possible—whether in fact the inflowing venous blood is under a sufficiently high pressure to distend the ventricles. In their view we should not think of the increased minute-volume as due to a passive dilatation of the heart but should rather attribute it to an active diminution in the size of the heart with increased emptying power.

MUCOUS COLITIS

Mucus is a glycoprotein which is a normal secretion of both stomach and intestine. Its exact functions are difficult to assess. In the first place it is able to absorb large quantities of water and also a good number of dissolved substances. In the stomach it certainly absorbs both hydrochloric acid and ferments and for this reason it has been regarded as having some protective rôle in gastric digestion. Thus Boldyreff[1] compares mucus to a bumper that wards off excessive irritation of the mucous membrane in the digestive tract. But at the same time he draws attention to its power of setting free, under changed conditions, ferments that it has previously absorbed. On the whole his evidence suggests that excess of mucus is likely to be harmful to digestive processes, but that in normal amounts its protective action is of the utmost value; like a fish net, he says, mucus catches microbes and so performs mechanical disinfection along the entire digestive tract.

The normal mucus of the intestine probably fulfils the function of softener, lubricant, protective, and water-carrier, and its production is of course much increased whenever there is intestinal irritation, as in infective colitis. There are many people however who from time to time pass large quantities of mucus—either alone, or with fæces, or in inspissated casts—without apparent cause, and their complaint is apt to be called by the misleading name of mucous colitis, though evidence of actual inflammation is lacking. Various changes in the frequency and nature of the bowel actions may be found in such patients, varying from extreme spastic constipation to profuse mucous diarrhœa. In these circumstances it is never easy to determine whether the abnormalities of mucous secretion and bowel actions cause the symptoms or whether symptoms and abnormalities of mucous secretion are alike the result of some other underlying disorder elsewhere in the body. It is therefore encouraging to find a writer[2] on mucous colitis prefacing his paper with the statement that he has made observations that lead to a better understanding of this clinical entity. It is disappointing, on the other hand, to find that the classification presented contains no less than eleven subdivisions of "referred colitis" not including a difficult group of "complex cases." The causes indicated are also many and various—their complexity being pleasantly increased by printer's errors—and treatment alone seems simple since "a mild catharsis by castor oil, followed by a regularly administered laxative, is indicated and a mild sedative to allay intestinal supersensitiveness and autonomic susceptibility fills all requirements." We fear that this is too good to be true, and that the multiplicity of symptoms, the varying causes, and frequent failure of all forms of treatment leave mucous colitis a problem of very great difficulty. The more is known about it the more is emphasis laid on the essential rôle of the nervous system in governing both the motor functions of the bowel and its secretion of mucus.

LONDON MEDICAL EXHIBITION, 1936

Not much more than a generation ago the physician used to buy a very limited number of drugs once or twice a year from an almost equally limited number of firms, compound a few stock mixtures and some favourites of his own in his dispensary, and feel that he had all the armamentarium he needed. In its own way, the equipment of the surgeon was equally limited. The proliferation of aids to every department of medicine which has taken place within the memory of most of its practitioners has been due to several factors. One of the chief has probably been the great advances that have been made in applied chemistry and physics, but whatever the cause, the practitioner's chief anxiety to-day is not to decide what mixtures to make up for himself, but to distinguish, from the hundreds of compounds which are prepared for his assistance, those which may be of some real value to him in his struggles against disease; and when he has to tackle debility he may also find himself puzzled as well as helped by the range of dietary supplements on the market. The surgeon's corresponding task is selecting from the varied products of the manufacturer's ingenuity those which he will be most likely to need in his daily work; specialists such as ophthalmologists and aurists have of recent years had to face the same or similar problems. It is now comparatively easy for the manufacturer of fine chemicals, the biological chemist, the metallurgist, the optician, and the engineer to fulfil any reasonable requirement of the medical practitioner and not a few unreasonable ones. This facility has produced something like a race to turn out each year more and more permutations and combinations of synthetic drugs, vitamin foods and complicated surgical apparatus, not necessarily to satisfy any formulated demands, but rather in the hope that some use may be found for them. And where there is an assured demand, as, for example, for cod- or halibut-liver oil, a physician must choose from about twenty makes, all vouched for as reliable by assay; there must be ten good kinds of diabetic bread and as many ingenious operating tables.

When, however, the critic has accused the exhibitors at the London Medical Exhibition of producing an embarrassment of riches, he has shot his bolt. The products shown there are of high quality; the promoters, with many years of experience and a determination to maintain a rigid standard see to that. What stands out at the exhibition is the keenness and resourcefulness of the manufacturers when faced with a specific problem. Our correspondent from Scotland quotes on another page the tribute paid by Prof. Dunlop to the manufacturing chemists in his inaugural lecture. They constantly show willingness to risk money and effort in setting up costly plant and employing highly paid experts to manage it, on the chance that the products will prove sufficiently useful to give them a return. Nowadays as soon as a potentially useful discovery or invention is made half a dozen manufacturers instantly develop it and ensure that the medical profession and their patients shall have the benefit of it at a reasonable price.

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[1] Boldyreff, W. N.: Acta Med. Scand., 1936, lxxxix, 1.

[2] Goodall, J. R.: Jour. Obst. and Gyn. Brit. Emp., October, 1936, p. 925.

The Medical Exhibition provides a far more satisfactory solution of the problem of how to tell the doctor what is being prepared for his use than does the post office. Many firms maintain a continuous outflow of circulars and free samples to practitioners, but a large proportion must find their way into the waste-paper basket; even if they are read they cannot give such a clear idea of the nature and possibilities of the goods as can be got from discussion with those in charge of the stands. Moreover, the practitioner with a specific problem can come and challenge the exhibitors to solve it. The exhibition has amply justified its existence, and its promoters each year render a service to our profession.

PASCHEN BODIES

THE death at Hamburg of Enrique Paschen, noted on another page, has followed closely that of his contemporary, Amédée Borrel, at Strasbourg, mentioned in a recent Paris letter (p. 952). Virus workers all over the world have now to mourn the passing of the two pioneers whose names will always be associated with the demonstration of elementary bodies in the lesions of the pock diseases (fowl-pox, Borrel, 1904; vaccinia and small-pox, Paschen, 1906 and 1908). These observations, accompanied as they were by the expressed belief that the bodies in question constituted the veritable causæ causantes of the diseases with which they were associated, had long to wait for general acceptation, and it is only within the last six years that renewed attention to them, in the course of the recent great revival of virus studies, has yielded the long looked-for evidence of their ætiological importance. Their study is even yet, however, in its infancy, but now that serious attention is being given to them after a long period of neglect and old records are being more eagerly scrutinised, it is just possible that a valid claim to have discovered and figured the elementary bodies in a virus lesion, at a time when the isolation of causative and cultivable organisms from virus lesions had not yet been given up as hopeless, may be posthumously awarded to John B. Buist, whose studies on vaccine lymph carried out in the bacteriological laboratory of the University of Edinburgh and published in book form in 1887[1] contain a remarkably accurate description of the elementary bodies, suspected by the author to represent the spores of micrococci.

THE POPULATION OF THE WORLD

IN a recent paper[2] Raymond Pearl and Sophie Gould, continuing their previous studies of population, take the whole world for their field of discourse and seek to measure the numbers and the growth-rate of its human inhabitants. At the present time, they report, over 70 per cent. of the population is either regularly counted in recurring censuses or has been counted at some time in the past—or at least an attempt has been made at a count. Of the wholly uncounted residue, which must be estimated, China constitutes by far the major portion, and her numbers probably constitute as much as 21 per cent. of the world total. Including China their estimate of the world's population at the middle of 1931 is 2073·3 millions, living at an average density of 40 persons per square mile, and probably growing in recent years at a rate of about 1 per cent. per annum. The population in the middle of the seventeenth century they assess at 445 millions, and reviewing various hypotheses find it reasonable to conclude that this total was reached by a very slow and irregular rate of growth over a very long time, followed in the last 300 years by a relatively tremendous spurt not yet ended. This spurt they attribute to scientific discovery and "the application of its results, in the broadest sense including exploration as well as technology, to man's basic problem of how best to cope with and exploit his natural environment." In this discussion of totals and rates of growth in the dim past we can rely only upon more or less intelligent guesses and what seem reasonable hypotheses. With more recent figures we are on relatively sure ground and one aspect of the world's population Pearl and Gould present with clarity. A little over 5 per cent. of the land area of the earth contains, they compute, 52·5 per cent. of its population; in something over half the total land area there resides only 4·5 per cent. of the total.

AT the annual meeting of the London Insurance Committee on Thursday, Oct. 22nd, Dr. E. A. Gregg completed his year of office as chairman of the committee. Dr. Gregg is the second medical man and the first insurance practitioner to hold that position. The committee passed a vote of appreciation of the able, impartial, and courteous manner in which Dr. Gregg had discharged his duties and he was presented by the incoming chairman with a copy of the resolution bearing the committee's seal.

THE LEAGUE'S NUTRITION POLICY

THE recommendations of the second committee on nutrition were accepted by the Assembly of the League of Nations this month. Although the committee looks forward to international coöperation in the exchange of ideas and in the organisation of agricultural produce, it urges national action as the first step. The League then is to pass on the committee's recommendations to the governments.

One group of recommendations is concerned with improving the scientific basis of nutritional policies. The governments are asked to encourage the study of dietetic requirements, existing inadequacies, and prices, supplies, and consumption; and they are invited to consider to what extent and by what means their national statistics of the supply and consumption of individual foods might be improved. A second group deals with the teaching of the medical profession and the laity about nutrition. A third asks for consideration of the dietary needs of special sections of the community, expectant and nursing mothers, children, and the unemployed. Another group of recommendations deals with the economic aspects and urges governments to take steps to make food-supplies, and especially protective foods, available at prices within the reach of all. For this purpose the committee suggests closer collaboration between producers' and consumers' organisations and the evolution of agricultural production in order to satisfy the requirements of sound nutrition.

Governments are recommended to set up bodies, under their control and in contact with scientific institutions, to be centres of research, study, and propaganda, "a centre where the recommendations and principles laid down by experts can be adapted to national conditions." They are also asked to promote the international standardisation of the technical analysis of foodstuffs, and the control of preparations sold primarily for their vitamin content. The provision of standards of reference and of specification is demanded for the grading of all kinds of food according to quality.

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[1] Vaccinia and Variola: A Study of their Life-history. By John B. Buist, M.D., F.R.S.E. London: J. and A. Churchill Ltd.

[2] Human Biology, September, 1936.

PROGNOSIS

A Series of Signed Articles contributed by invitation

CXIX.—PROGNOSIS IN CANCER OF THE RECTUM

At the present time the only satisfactory treatment of rectal cancer is surgical excision of the rectum. Prognosis depends therefore on the patient's capacity to stand the operation and on whether the disease is still at a stage when it can be completely removed. The assessment of the patient's fitness for operation is largely a matter of clinical judgment. The points to which special attention must be directed are considered in the first two sections of this article. It will generally be found possible to form a sound opinion as to whether the patient will prove a good operation risk and whether the disease is early or late. A much more accurate prognosis can be reached after the pathologist has had the opportunity of examining the excised rectum. The particular points to which attention is directed are the rate of growth of the tumour and the extent of its spread by direct continuity, by venous channels, and by the lymphatic system. These methods have proved very useful to the surgeon because it is possible, on the basis of a pathological classification, to reach a degree of accuracy in prognosis probably unequalled in any other branch of malignant disease.

PROGNOSIS BASED ON CLINICAL EXAMINATION

When rectal and sigmoidoscopic examination (together with biopsy confirmation if thought necessary) has revealed a rectal carcinoma, the prognosis as regards *cure* in any case depends entirely upon whether the growth is operable. The smaller, the more movable, and the more superficial and protuberant the growth the more likely is it to be completely removable. A deeply ulcerating growth however is likely to have penetrated the rectal wall with risk of extrarectal spread: for anatomical reasons an ulcerating growth anteriorly is more dangerous than a similar growth posteriorly; this applies to both sexes.

If the primary growth is situated in the middle and lower rectum an accurate estimate of its mobility can be made by the examining finger, but if the growth arises in the upper third of the rectum one can only form a provisional opinion of its operability. A large growth in the rectosigmoid region may give a false impression of fixity, especially in male subjects with a narrow pelvis; in such cases abdominal exploration is necessary and often proves a borderline case to be still within the limits of operability. As a general rule it may be said that the immediate prognosis of a growth high up in the rectum is less favourable than that of a growth in the lower rectum, partly because a rectosigmoid growth is liable to produce some degree of obstruction with its attendant dangers, and partly because eradication of such a growth can usually be carried out only by a combined excision with its considerable operative risk.

In some cases rectal examination suggests a very bad prognosis :

1. In a small deeply ulcerated growth in the lower third of the rectum, if hard glands or any extrarectal induration can be made out digitally on the posterior or postero-lateral aspects of the rectum, this is a certain indication of such extensive lymphatic spread that cure is unlikely even by a radical combined operation.

2. Sometimes rectal examination reveals submucous thickening above the main growth, either in the form of nodules or rarely as a generalised brawny infiltration analogous to the leather-bottle stomach. Clinically this may resemble a connective tissue tumour such as a sarcoma or endothelioma, but it is more likely to prove to be a rapidly growing carcinoma. Such a patient is incurable by any method, and even if a palliative perineal excision is done, early pelvic recurrence will inevitably take place.

3. If vaginal examination proves the growth to be bulging into the vagina and to be adherent to the posterior vaginal wall the outlook is poor. A growth which has ulcerated through into the vagina is inoperable, and the same estimate applies to a high rectal carcinoma which can be felt invading the posterior vaginal *fornix*; a combined excision of the rectum in conjunction with a total hysterectomy is attended by a prohibitive mortality.

4. A low rectal carcinoma which has spread down the anal canal and presents as an ulcerating or fungating anal mass may justifiably be treated by perineal excision, chiefly as a palliative method, but the prospects of cure are slender and the possibility of extension to the inguinal glands has to be kept in mind.

Apart from these local characteristics other factors have an important bearing on prognosis.

Age.—Young subjects usually stand radical operation well; thus in a series of 19 perineal excisions (St. Mark's Hospital, Cancer Follow-up Scheme) in subjects aged 35 or under there was only 1 death, and in 15 combined excisions there were only 2 operative deaths. Conversely, in old subjects the risk of radical operation is much greater, the chief causes of death being chest complications and renal failure. In the St. Mark's Hospital records there are 37 cases aged 70 or over treated by perineal excision with 8 operative deaths, and out of 7 cases of 70 or over treated by one of the combined methods of excision (abdomino-perineal or perineo-abdominal) there were 3 deaths; these numbers are admittedly small but serve to indicate the heavier mortality at this advanced age.

Sex.—It is the general experience of all surgeons that the operative risk of excision of the rectum is less in females than in males. The reason for this is that the wide female pelvis renders the dissection and mobilisation of the rectum more easy and in consequence there is less risk of sepsis.

General conditions.—The thin wiry type of patient with a regular slow pulse and a good blood pressure is the ideal subject for an excision of the rectum, especially when a combined excision is proposed. A persistently rapid pulse may be the deciding factor, if the growth is operable, in favour of a perineal rather than a combined excision. Prognosis is sometimes entirely altered by general conditions, such as obesity, chronic bronchitis, diabetes, or myocardial failure, which necessitate the adoption of palliative rather than radical treatment. A marked loss of weight and strength with increasing anæmia and loss of appetite usually indicate an advanced state of the disease with a short expectation of life. Exceptions to this of course occur; for instance, a small friable growth may bleed profusely and produce severe anæmia and yet be well within the limits of surgical removal. Similarly, a large villous growth may undermine a patient's strength on account of diarrhœa and loss of sleep; the removal of the growth will be attended by a very good prognosis.

Urinary failure, as shown by dryness of the tongue, poor urinary output, and raising of the blood-urea may prohibit a severe operation; similarly in a borderline case the presence of a urethral stricture of long-standing or a greatly enlarged prostate with the expectation of much post-operative urinary difficulty may force the surgeon's decision to deny radical operation.

Pregnancy.—It might be thought that cancer of the rectum complicated by pregnancy would be an almost hopeless combination. The two following cases however suggest that the prognosis probably depends on the depth of spread at the time of operation rather than upon the incident of the pregnancy.

1. Mrs. L. B., aged 26 (Mr. Lockhart-Mummery's case), seen in February, 1930, with a carcinoma of the rectal ampulla; patient two months pregnant. Uterus emptied, then colostomy and perineal excision (May, 1930). Colloid carcinoma invading the perirectal tissues, neighbouring lymphatic glands free from metastases. The patient remains well to June, 1936 (six years).

2. Mrs. D. D., aged 37 (author's case), seen in May, 1931, with a carcinoma ¾ inch in diameter in the lower third of the rectum, complicated by a four months' pregnancy. Treated by hysterectomy (in conjunction with Mr. C. Lane-Roberts) and colostomy, followed by perineal excision (June, 1931). Columnar-celled carcinoma invading inner muscular coat only; lymphatic glands free from metastases. The patient remains well to September, 1936 (over five years).

PROGNOSIS BASED ON EXPLORATORY LAPAROTOMY

The operability of a considerable proportion of cases of rectal cancer can only be decided by laparotomy and thorough abdominal exploration. This applies particularly to tumours in the rectosigmoid region, which constitute between 60 and 70 per cent. of all rectal cancers. In addition to the obvious criteria of operability such as mobility of the growth and absence of detectable metastases, the surgeon will note the presence or absence of hard enlarged glands extending up along the superior hæmorrhoidal vessels; such glands usually indicate that the case is a late one and much will depend on whether the vascular pedicle can be ligated well above the highest infected gland.

If a rectosigmoid growth is found to be adherent in the pelvis either to the side walls of the pelvis or to other viscera such as the bladder, uterus, or coils of small intestine, the operator's experience must decide whether the adhesions are only inflammatory, or whether they are due to actual malignant invasion; if the latter, the prognosis is bad both in regard to immediate mortality and liability to recurrence. Involvement of the small intestine or its mesentery implies a late stage of the disease with likelihood of peritoneal or lymphatic spread beyond the reach of radical operation, and a double resection has only in rare instances been justified. If intra-abdominal examination of a growth in the upper third of the rectum shows that the peritoneum over it is ulcerated the risk of peritoneal dissemination is grave, and even if a radical operation is done the chances of cure in this type of case are very slender.

In cases which are clearly fixed and inoperable, valuable help in formulating prognosis may be obtained by laparotomy; the presence of free fluid, peritoneal or omental secondary deposits, or metastases in the liver, all indicate a brief expectation of life, and as a general rule it may be reckoned that 85 per cent. of these cases will be dead within a year; it should be remembered, however, that if a colostomy is done the patient's health may improve to a surprising degree for some time, and last year I recorded elsewhere with Mr. O. V. Lloyd-Davies five cases inoperable by reason of abdominal metastases who survived for more than two years after palliative colostomy had been performed.

PROGNOSIS BASED ON PATHOLOGICAL INVESTIGATIONS

It is necessary next to consider what views as to prognosis may be formed after a study of the pathology of the excised tumour. This investigation should never be omitted because information is obtained thereby which is likely to be of great assistance to the surgeon in forming an accurate opinion of the patient's prospects.

The details of a satisfactory method for the examination of the operation specimens were described in 1932 and 1935 by Dr. Cuthbert Dukes, director of the pathology department at St. Mark's Hospital. His reports on pathological specimens include a description of the size and position of the growth, its extent of spread by direct continuity, by venous channels, and by lymphatics, and also a description of the microscopic characters and rate of growth. On the basis of these tests he divides cancer of the rectum into three groups: A cases, in which the growth is limited to the wall of the rectum; B cases, in which there is spread by direct continuity into the perirectal tissues, but no glandular metastases; C cases, in which metastases are present in the lymphatic glands. More than 500 cases of cancer of the rectum have been classified in this way at St. Mark's Hospital, the distribution of these groups being shown in Table I. The practical value of this method of classification is shown by the figures in a later table which records the results of patients treated by perineal excision.

TABLE I

Grouping of 563 Cases of Rectal Cancer Treated by Radical Operation

Group.	Cases.	Percentage.
A	84	15
B	205	36
C	274	49

Histological grading.—According to its histology carcinoma of the rectum may be divided into two main groups—adenocarcinoma composing about 90 per cent. and colloid carcinoma about 10 per cent. There are, however, very marked differences in the microscopic appearances of rectal cancer due to the fact that in some the rate of growth is slow and in others more rapid. These differences have long been recognised and described by such terms as "low-grade malignancy" or "highly malignant." In recent years an attempt has been made to give this difference in histological characters a more precise definition and, following the direction of Broders, adenocarcinomata of the rectum are now divided into four grades of malignancy according to the degree of differentiation of the tumour cells. At St. Mark's Hospital a recent analysis of more than 200 cases graded in this way has shown very striking differences in the survival rate after excision of the rectum. Thus the five-year survival rate for Grade 1 tumours was 60 per cent., for Grade 2 44 per cent., for Grade 3 24 per cent., for Grade 4 nil, and for colloid growths 37 per cent.

The method of classifying tumours on the basis of their histology is not in any way opposed to the classification into A, B, and C cases according to extent of spread. The one method measures the *rate* of growth, the other the *distance reached*, and it is obvious that the two are correlated. From the point of view of prognosis it is important to collect all the information possible so that a complete pathological report should include both an estimate of the rate of growth of the tumour as well as a description of the extent of its spread. The surgeon will find the information derived from histological grading to be particularly useful in Grades 1 and 4, but it is a drawback to grading that these only include about 10 per cent. of rectal cancers. The great majority of malignant growths fall into Grade 2 or Grade 3.

The significance of colloid or mucoid change has been the subject of much speculation; colloid carcinoma has generally been regarded as a type for which the prognosis is bad, but there are some grounds for believing that this is not necessarily so, and that as in other types the depth of spread is the important factor.

W. B. GABRIEL, M.S., F.R.C.S.,
Surgeon to St. Mark's Hospital.

(To be concluded)

PANEL AND CONTRACT PRACTICE

THE PANEL CONFERENCE

THE annual conference of local medical and panel committee representatives was held on Oct. 22nd in the Great Hall of B.M.A. House, with Mr. D. ELLIOTT DICKSON, F.R.C.S. (Lochgelly, Fife), in the chair. Dr. Wm. C. Woodward, director of the Bureau of Legal Medicine of the American Medical Association, was welcomed as a visitor. Dr. H. C. JONAS (Barnstaple), chairman of the Insurance Acts Committee (I.A.C.), in moving the adoption of the report, said that the outstanding feature of the year was Dr. H. G. Dain's retirement from the chair after twelve years' service. He wondered how the conference would fare without Dr. Dain's clarity of vision and facility of expression as the I.A.C.'s spokesman. He then spoke of Sir Henry Brackenbury's decision not to seek re-election to the I.A.C. Sir Henry, he said, had done extraordinary work for insurance practitioners. There was no acuter mind than his, and he was the ideal public debater; he fought hard for his point of view and, when the fight was over, bore no rancour even if his view was not adopted. Dr. E. KAYE LE FLEMING added that they owed to Sir Henry the foundation of their magnificent organisation, and the conference passed with acclamation a motion recording grateful appreciation of his services. Sir HENRY BRACKENBURY said that, looking back over the 25 years since the introduction of the Insurance Act, two broad questions struck him particularly: the increased value the nation places on its health, and the enormously increased area of medical responsibility. Medical practitioners as a body were sometimes reproached with the fact that the health of the nation was not better than it was; the community and the individual lay person also had responsibilities. It was, he thought, not for practitioners to reproach themselves for the imperfections of the national health if the other parties were not recognising and carrying out their responsibilities. There were four factors affecting the health of the community which needed attention—noise, smoke, nutrition, and physical training.

Representation on the I.A.C.

At the 1935 conference the I.A.C. were instructed to devise a scheme by which the various groups of practitioners in an electoral area should have a voting power approximating to the numbers of insurance practitioners in the groups, and to arrange for such a scheme to be put into force for the I.A.C. election in 1936. The I.A.C. decided on a scheme whereby the individual members of the local medical and panel committee should constitute the electorate, the vote of each member bearing a value equal to the number of practitioners on the medical list at a specified date divided by the number of members of the committee. An amendment by Dr. G. F. WHYTE (Dundee) to provide that an insurance practitioner should be regarded as included in the list of only one insurance committee was lost, and the conference approved the action of the I.A.C.

Capitation Fee

Dr. JONAS (I.A.C.) moved:

That the case for an increase in the capitation fee for insurance practitioner is sound.

He stressed the importance of securing suitable recruits to the medical profession; the children of medical practitioners were among the best types of recruits. Since 1924 when the present capitation fee was awarded by a court of inquiry the cost of medical education had increased, the period for qualification had been prolonged to six years, and the curriculum had been stiffened. There were ample figures available to demonstrate the increasing volume of work in insurance practice; moreover the efforts of approved societies to reduce sickness claims had greatly increased the clerical work. He did not think there was much alteration in general practice expenses, but there was no doubt about the increase in visits to and attendances by insured persons. It was undeniable that the medical services given under the N.H.I. Acts were considerably better to-day than in 1924.

Dr. E. A. GREGG (London) expressed doubt about the soundness of the case as submitted; it was unwise, he thought, to base it merely on post-1923 conditions.—Dr. H. W. WALLACE (Lancashire) disagreed with Dr. Jonas about general practice expenses, mentioning the increased cost of assistants.—Dr. A. McCARTHY (Birmingham) commented upon the discrepancy between the increase of work and the reduced cost of living index figure, but Dr. A. BENHAM STICH (Gateshead) would have liked expert advice to be taken on the cost of living.—Dr. W. M. KNOX (Glasgow) wondered whether the I.A.C. would be prepared to accept a reduced capitation fee if the result of arbitration should be unfavourable.—Dr. P. MACDONALD (York), speaking as a hospital surgeon, said it was clear to him that the character of the work done by insurance practitioners had changed during the last 21 years, had changed since 1923, was still changing, and was changing in the right direction. The case for the insurance practitioner should, he felt, be based on the quality of his work, and the responsibility he undertakes, rather than on the mere amount.—Dr. J. H. WARD (Lincs, Lindsey) spoke against the proposal on the grounds that the Government would not agree to an increased fee.—Dr. A. BALDIE (London) said no one present, and very few other practitioners, would think the case was not sound. But they might have to meet the argument that the country is initiating schemes of national defence and that doctors should set an example at this juncture. He suggested this was an opportunity to appeal to the Minister of Health to inquire into the allocation and distribution of surplus funds credited to approved societies.—Dr. DAIN said that if the conference thought the case was sound they must decide what they intended to do. If they went to arbitration they must be prepared to accept the award. The I.A.C. felt that the case was sound.

The motion was put and carried unanimously. A resolution declaring that the time was now opportune for action was carried by a large majority, as well as a third motion instructing the I.A.C. to proceed with an application to the Minister of Health for an increase in the capitation fee. The three resolutions were then put as a composite motion and were carried with one dissentient.

Consultant and Specialist Services

The report of the I.A.C. on this subject referred to the appointment of a joint committee representing the British Medical Association, the National Association of Insurance Committees, and the National Conference of Friendly Societies, to explore the possibility of securing the addition of consultant, specialist, and laboratory services to the benefits available under the N.H.I. Acts. Certain data are being obtained so that the joint committee may form a more accurate estimate of the size of the problem, including some idea of the public demand for the suggested extension of the present service. Meanwhile a subcommittee of the I.A.C. had prepared and the I.A.C. had approved a number of provisions and safeguarding conditions as a basis of discussion by the joint committee. The principal items are :—

> 1. That consultant, specialist, and pathological services should be available as an integral part of medical benefit for all persons entitled to that benefit.
> 2. That such service should be available only on the recommendation of the general practitioner in attendance.
> 3. That there should be free choice of consultant, specialist, and pathologist by the general practitioner in attendance.
> 4. That the decision in regard to the eligibility of practitioners for inclusion in, and continuance on, the list of available consultants formed in connexion with the provision of the service, should rest with a properly constituted professional body.
> 5. That the organisation of such services should be on lines strictly comparable with those obtaining in private practice, the consultant receiving the patient in his own consulting-rooms or attending at the patient's home, as the case may be.

An amendment by Kent to provide alternatively for the consultant to attend at the consulting-room of the general practitioner in attendance was carried.

A motion by Lancashire that there should be no extension of medical benefit unless and until the capitation fee is considered adequate was carried almost unanimously.

Insured Persons in Hospital

The conference approved the action of the I.A.C. in agreeing to the inclusion in the regulations of a proviso laying it down that a practitioner shall not be responsible for the treatment of his insured patients in a hospital unless the hospital is one in which patients are entitled under the rules to secure treatment by their own medical attendants practising in the district, whether or not such medical attendants are on the hospital staff. This will not apply to convalescent homes or institutions carried on for profit.

Convalescent Homes

The I.A.C. have been endeavouring to check the practice which exists at some convalescent homes of collecting the medical cards of insured inmates on arrival and giving a temporary resident credit. In the autumn of 1935 inquiries were instituted and it was found that of 48 insurance areas with convalescent homes situated in them only 11 had limited payments from the local practitioners' funds to the amount received from the central fund, whilst 8 had such limitation under consideration. In 14 areas payment was confined to those actually receiving treatment and 6 areas had this point under consideration. Pointing out that the payment out of a local practitioners' fund in respect of temporary residents of a sum greater than that received from the central fund means that the difference is borne by those practitioners who have not attended temporary residents, the I.A.C. recommended that no distribution scheme should contain any provision permitting a higher payment. This was agreed to.

Emergency Treatment

Dr. J. NELSON (Hull) moved :

> That it be an instruction to the I.A.C. to consider whether any alterations should and could be made in the regulations dealing with emergency treatment to ensure that payment for such service should not fall on either the doctor or the practitioners' fund where the circumstances under which the service was rendered do not comply with the existing regulations.

This, he said, was a small matter, but one which had been causing a lot of trouble. He instanced the case of a charwoman who, whilst working in the house of her employer soon after 9 A.M., splashed ammonia into her eyes. This he contended constituted an emergency. The mistress must have known that the employee was insured, but instead of sending for the patient's doctor she called in her own medical attendant. The practitioner giving the treatment sent in a claim for emergency treatment. The two doctors lived about the same distance from the employer's house. The employer was quite willing to pay the doctor who attended, but Dr. Nelson's committee took the view that the practitioner was not entitled to receive money either from or on behalf of an insured person.

Dr. J. SNEDDON (Manchester) said that in his area the difficulty was overcome by practitioners doing one another's emergency treatment. One type of case which was giving considerable trouble was that of emergency treatment following extractions of teeth.—Dr. C. L. BATTESON (London) said that in a case where the two doctors were equidistant there could be no reason for sending for a practitioner other than the patient's own doctor. In a case of this description his committee would disallow the claim. The practitioner who was called in would have a perfect right to charge a fee.—Dr. JONAS said that on the facts of the case cited he agreed with Dr. Batteson. He thought that areas finding trouble with emergency cases might well look into the Manchester method; it should be a case of "you do it for me to-day and I do it for you to-morrow."

The motion was withdrawn.

Excessive Prescribing

A motion by Essex that every effort should be made to devise more efficient means for the examination of the orders issued for the supply of drugs, &c., the prevention of waste and extravagance, and for safeguarding the limited funds available for the provision of drugs was agreed to, and the I.A.C. was asked to take steps towards this end.

Lancashire then asked the conference to agree that the National Formulary is sufficiently comprehensive to cover the medicinal treatment of the majority of conditions with which the insurance practitioner has to deal, and that its more general use would result in reduction of the cost of drugs without loss of therapeutic efficiency.

Both these motions were referred to the I.A.C.

Other Motions

Dental Benefit.—Dr. J. W. E. CORY, at the suggestion of Dr. J. W. Bone (I.A.C.), amended a motion by West Suffolk to read as follows:

> That the adoption of the new scale in regard to administration of anæsthetics under the dental benefit regulations whereby an insured person may be deprived of the services of a medical practitioner or even endanger his right to medical benefit contravenes the principle that an insured person is entitled to treatment not inferior to that obtainable by a private patient and that steps be taken to regularise the position

and the motion as amended was adopted.

Dispensing Capitation Fee.—Dr. J. A. PRIDHAM (Dorset) moved:

> That this conference instructs the I.A.C. to consider the advisability of investigating the adequacy of the present dispensing capitation fee.

Dr. JONAS said the I.A.C. would accept the reference provided it was left until the question of the capitation fee itself had been settled, and this was agreed to.

Range of Service.—A motion by Hampshire that the I.A.C. should be instructed to press for the amendment of Clause 8 (3) of the terms of service so that it should read:

> Notwithstanding anything contained in the preceding paragraphs, the treatment which a practitioner is required to give does not include treatment in respect of a confinement, abortion, or threatened abortion

was rejected by a large majority as well as a motion by Lancashire to amend the same clause so that the last two lines should read: "or attendance after labour in respect of any condition resulting therefrom within ten days." Dr. Dain remarked that practitioners had undertaken the obligation and should carry it out.

Partial Incapacity for Work.—Dr. J. S. MANSON (Warrington) moved:

> That this conference instructs the I.A.C. to consider the advisability of setting up a special committee to investigate the problems of alternative or suitable occupations for insured persons suffering from chronic disabilities which cause such partial incapacitation as to prevent them following their usual occupation

By changing their occupations persons suffering from chronic disability might, he suggested, get a readjustment to life. But Dr. LE FLEMING rejoined that the problem of alternative work was an individual matter and no one was better suited to help a patient than his own doctor, and the motion was lost.

National Insurance Defence Trust

The statement submitted by the trustees showed that of the £250,000 aimed at £207,295, or 82 per cent., had been subscribed. England had subscribed 85 per cent., Scotland 78 per cent., and Wales 55 per cent. of their quotas. At August 31st, 1936, the assets of the fund were £238,432. The excess of income over expenditure for the past year was £5428. Mr. N. E. WATERFIELD (Surrey) moved:

> That this conference considers that the total sum aimed at for the National Insurance Defence Trust is inadequate and requests the I.A.C. to consider and to put into force measures for the increase of this fund.

Either the fund was, he said, sufficiently large and should be closed down or else efforts should be made to stimulate it; in his view it was entirely inadequate for a fight to a finish. He thought it unlikely that they would have to draw on the fund for a fight on the capitation fee, but the terms of service might cause such a fight. The feeling in Surrey was that every practitioner should contribute over a period of ten years.—Dr. H. R. CRAN (Surrey) suggested that a fund of two or three million pounds should be raised.—The motion was carried by a large majority.

At the conclusion of the conference Mr. Elliott Dickson was re-elected chairman for next year.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Comdrs. J. R. Brennan and A. C. Anderson to *Drake* for R.N.B.

Surg. Comdr. C. R. Boland retires.

Surg. Lt.-Comdr. E. V. Barnes to rank of Surg. Comdr.

Surg. Lt.-Comdrs. W. P. E. McIntyre and T. C. Crean to *Pembroke* for R.N.B., and J. Johnston to *Victory* for Haslar Hosp.

Surg. Lts. S. I. Ballard and M. G. Peever to *Pembroke* for R.N.B.; W. H. C. Watson to *Queen Elizabeth*; B. M. O'Sullivan to *Drake* for R.N.B.; J. T. Wellwood to *Grimsby*; S. Miles to *Cockchafer*; and F. H. Williams to *Cicala*.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Lts. F. W. Baskerville and P. G. Burgess, commissions as Surg. Lts. terminated on entry into R.N. as Surg. Lt.

Surg. Lt. A. V. Griffiths transferred from list 2 of Severn Division to list 2 of the London Division.

ROYAL ARMY MEDICAL CORPS

Capt. J. W. Eames to be Maj. (provisional).

Short Service Commissions: Lts. G. C. Dansey-Browning and A. Gleave to be Capts.

Lt. (on prob.) A. B. Dempsey is restd. to the estabt.

REGULAR ARMY RESERVE OF OFFICERS

Lt.-Cols. R. J. Cahill, D.S.O., and E. B. Lathbury, O.B.E., having attained the age limit of liability to recall, cease to belong to the Res. of Off.

SUPPLEMENTARY RESERVE OF OFFICERS

Lts. to be Capts.: W. H. Young and H. D. K. Wright.

TERRITORIAL ARMY

Capt. T. F. Greenhill to be Maj.

W. H. Wolstenholme (late Offr. Cadet, Manchester Univ. Contgt., Sen. Div., O.T.C.) to be Lt.

TERRITORIAL ARMY RESERVE OF OFFICERS

Army Dental Corps.—E. T. B. Graham-Scott to be Lt.

ROYAL AIR FORCE

Flight Lt. R. G. James to R.A.F. Station, Turnhouse.

J. H. Preston is granted a short service commission as Flying Offr.

INSTITUTE FOR THE SCIENTIFIC TREATMENT OF DELINQUENCY.—Sixteen seminars for probation officers and social workers will be held at the West End Hospital for Nervous Diseases, Welbeck-street, London, W. Dr. T. Rowland Hill, on Oct. 22nd, gave the first of four weekly seminars on organic disease and delinquency, and on Monday, Nov. 16th, at 6.45 P.M., Dr. C. J. C. Earl will give the first of four lectures on mental defect and delinquency. In the spring the course will be concluded by a series of lectures on psychiatry and psychotherapy of delinquency by Dr. Denis Carroll. Further information may be had from the secretary of the Institute for the Scientific Treatment of Delinquency, 56, Grosvenor-street, W.1.

SPECIAL ARTICLES

MEDICINE AND THE LAW

“ To be Repeated ”

AT a Greenwich inquest last week the deceased woman was stated to have taken an overdose of Soneryl, a drug of the barbituric group prescribed in cases of insomnia. There was evidence that she had obtained 100 tablets from a Charlton chemist in May, 100 more in August, and 100 more (ordered by telephone) at the end of September. The coroner, Dr. W. H. Whitehouse, criticised the state of the law which permitted a doctor to prescribe narcotic drugs in supplies of 100 tablets and, by writing “repeat as required,” to enable patients to go on obtaining the tablets from year to year without revision of the prescription. What a pity, said the coroner, that the doctor should have that discretion; doctors in practice and nursing-homes had difficulty in getting supplies of narcotic drugs which had to be labelled, locked up, and inspected by officials, and yet private individuals could have 100 tablets lying about at any moment and could order fresh supplies at any time. “Let us hope,” he added, “that a new Pharmacy Act will soon come out.”

The incident was naturally taken up by the lay press as if a loophole had been thoughtlessly left in the Act of 1933. The situation was, of course, most carefully considered by the Poisons Board in its report published last year and in the draft rules which it recommended to the Home Office. The Board reported fully upon the restrictions desirable for certain drugs which experience has shown likely to be self-prescribed with fatal results. The list of such drugs, scheduled to the draft rules, included the barbituric group. The Board expressed its opinion that the circumstances did not call for those full restrictions imposed under the Dangerous Drugs Regulations which prohibit the dispensing of a prescription more than three times. It often happens, said the Board, that these drugs are genuinely required over long periods (e.g., phenobarbitone for epilepsy); it would be an unnecessary hardship for a patient to be compelled to incur frequent medical fees for renewing the prescription. On the other hand to impose no limit at all would defeat the whole purpose of the poisons rules, since the holder of a prescription could then, at any time throughout his life, supply himself without regard to the medical requirements of his condition and without medical supervision. The Board declared in favour of leaving this question of supplies to be decided by the doctor in charge of the case; it suggested a rule that the prescription should not be dispensed more than once unless the prescriber has stated thereon that it may be prescribed more than once; this suggestion was adopted by the Home Secretary and it appears in Rule 12 of the Poisons Rules of 1935. The prescription must be dated; the date of the dispensings and the name and address of the seller must also be recorded; and except in the case of health insurance practice or of prescriptions which may be dispensed again, the prescription must be kept for two years on the premises where it was dispensed and must be available there for inspection. Thus it is clear that the policy of leaving a discretion to medical practitioners was deliberate and not an oversight. New Pharmacy Acts do not “come out” with the automatic regularity of the flowers that bloom in the spring. The Act of 1933 and the Poisons Rules of last December, having been made by human hands, may be imperfect and may be found to need amendment; but at least they represent the well-considered judgment of experts. The facts disclosed before the Greenwich coroner are certainly disquieting and may justify fresh legal restrictions. The authorities will no doubt take such further steps as are necessary, though no revision is likely to prevent the abuse of facilities by patients determined upon suicide.

Obscene Publications

Medical books displayed in a shop window so as to attract the casual passer-by may render the publisher liable to prosecution under the law relating to indecent literature, whereas the same books, if published so as to reach medical men and bona-fide students, would not come within the law. Sir Edward Tindal Atkinson, director of public prosecutions, lecturing on Oct. 21st at King’s College, Strand, on the law and practice of indecent literature, mentioned this anomaly as an instance of the uncertainty of legal tests of what is indecent or obscene. Later in his lecture he referred to the recent growth of two classes of literature which embarrassed the administration of the law. One of these consisted of books, masquerading under the guise of scientific works, which purported to lay before the public in extreme detail the subject of sexual relations and aberrations. The other included books published under the guise of literature which either were obviously pornographic or else deliberately introduced indecent passages in order to increase selling value. Sir Edward remarked upon the difficulty of deciding whether criminal proceedings would not do more harm than good owing to the free advertisement thus given to the publication.

The test of obscenity was laid down by Chief Justice Cockburn in 1868 in R. *v.* Hicklin. The question is “whether the tendency of the matter charged as obscenity is to deprave and corrupt those whose minds are open to such immoral influences and into whose hands a publication of this sort may fall.” The same case established also that the motive of the publisher is immaterial. This principle recalls an older decision of 1809 which incidentally furnishes interesting early evidence of the practice of sea-bathing. A man was indicted for undressing and bathing in the sea in view of inhabited houses. Whatever his intention might be, said the judge, the necessary tendency of his conduct was to outrage decency and to corrupt the public morals. It was no justification to say that bathing on the beach at this spot might have been innocent a few years before. “For anything I know, a man might a few years ago have harmlessly danced naked in the fields beyond Montague House; but it will scarcely be said by the learned counsel for the defendant that anyone might now do so with impunity in Russell-square.” Excellence of motive, it would seem, would not protect a defendant if a prosecution were launched in respect of literature about birth control, though doubtless good intentions would mean a reduced penalty. The real difficulty of the laws against indecent literature lies in the uncertainty of the standards of the individual who composes the tribunal. In London, one may suppose, the standard is set by the metropolitan police-court magistrates who are invited by the prosecution to study, and pass their personal judgment upon, the alleged indecent literature. One magistrate may have what are sometimes deemed old-fashioned ideas; another may have a horror of seeming to impose a literary censorship. Sir Edward left no doubt of his own feeling that public opinion has swung rather too far in the direction of so-called liberality of thought.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

THE HYPOTHALAMUS: CLINICAL AND PATHOLOGICAL ASPECTS

Dr. George Riddoch gave the third of the William Ramsay Henderson Trust lectures last week, the subject being the clinical aspects of hypothalamic derangement. Though, he said, there has been a tendency to attribute too many functions to the hypothalamus, this part of the brain is the most important subcortical centre for the regulation of vegetative activity. Autonomic neuro-mechanisms continue to function, however, after the hypothalamus has been destroyed. The pituitary and hypothalamus work in close collaboration. It is in acute and subacute lesions that symptoms of hypothalamic disturbances are most likely to be observed clinically. Diabetes insipidus is the commonest symptom of disturbance of the tuberal region. Glycosuria is often present in acromegaly and is also a symptom of basophilism. It appears that the pituitary secretion plays some part in sugar metabolism. The retention of chlorides in the tissues may also occur in cases of hypothalamic glycosuria. Adiposity is a common symptom of hypopituitarism, but it is probable that the hypothalamus has a more important bearing on fat metabolism than has the pituitary itself. Profound loss of weight and strength sometimes occurs in lesions of the pituitary or hypothalamus. Genital dystrophy and impotence are also common in lesions of these parts of the brain. The study of cases of encephalitis has demonstrated the importance of the diencephalon in the maintenance of the sleep rhythm. It is also of interest to note, said Dr. Riddoch, that patients with narcolepsy are often stout. Damage to the hypothalamus in man often causes rise or disturbance of temperature and hyperpyrexia is a dangerous complication of operations on this part of the brain. Changes in the blood picture have been reported to follow hypothalamic lesions and there is some evidence that disturbances of hypothalamic function may be a cause of peptic ulcer of the stomach. Diencephalic epilepsy was first described by Penfield in a case of cyst in the third ventricle. Emotional disorders are also observed in cases of diencephalic lesions as in certain cases of disseminated sclerosis. Hypothalamic symptoms may be caused by inflammation, injury, or tumour. Tumours may involve the hypothalamus directly as in cases of third ventricle cysts, the cranio-pharyngiomata, and tumours of the pineal gland. The hypothalamus may also be damaged by tumours which cause internal hydrocephalus and result in thinning of the floor of the third ventricle.

SURGICAL ASPECT

The last of the series of lectures was delivered by Mr. Norman M. Dott on surgical aspects of hypothalamic disorders. After praising the work of Cushing and Dandy in connexion with the surgical approach to the hypothalamus, Mr. Dott said that he thought the irregularity of symptoms in hypothalamic disturbance was due to the fact that the local blood-supply varies considerably from one person to another. In his opinion, lesions in this neighbourhood are always paralytic and never stimulative in type. He referred particularly to his experience of operating on epidermoid pituitary tumours which spread up to involve the third ventricle. These tumours in their earlier stages produce a pure hypothalamic lesion. He described the surgical approach in these cases, saying that it is better to remove the base of the tumour first from below the brain and, at a later stage, remove the cyst in the third ventricle by exposing it from above through the lateral ventricle. The diagnosis of these cysts is often difficult, for chronic hydrocephalus from any cause may produce pronounced hypothalamic symptoms and may even cause pressure on the optic chiasm. Mr. Dott described the mental and sleep disturbances which occurred in some of his cases before or after operation. Diabetes insipidus was common after surgical interference in the hypothalamic region; several of the cases showed evidence of either adiposity or fat depletion. Disturbance of sugar metabolism, blood pressure and heart-rate and the gastro-intestinal viscera were also observed. He described one case of a child with a pineal tumour who died from the effects of acute peptic ulceration of the stomach. Disturbance of temperature was also observed in certain of his cases. The lecturer then described some remarkable instances of disturbance of sexual functions in lesions in this situation. While depression of the sexual functions was common in hypothalamic and pituitary disorders, in two of his cases after operation hypersexualism was a very striking symptom and in one of these an excess of gonadotropic hormone was found in the urine. In a remarkable case of pubertas præcox, a girl who began to menstruate at the age of six months died of scarlet fever when seven years of age. The post-mortem examination showed a tumour at the base of the brain arising from the region of the corpora mamillaria.

Prof. J. C. Brash, who presided over the series of lectures, intimated that the Henderson Trust intend to publish these lectures.

"RATIONAL TREATMENT"

Prof. D. Melville Dunlop, M.D., who was recently appointed to the chair of therapeutics in the University of Edinburgh, delivered his inaugural lecture last week on Rational Treatment. Prof. Dunlop said that it had been the fashion lately to sneer at certain proprietary drugs, but it must be remembered that some of the most important therapeutic drugs available to-day had been obtained by chemists employed by manufacturing firms. Workers in clinical research who had the necessary qualifications for such work were few, and only a small fraction of the researches published were of real value to science. The attempt to do medical work such as the writing of a thesis was, however, of immense value to the person who did it. The sick tended to believe in magic and to crave for authority. This tendency was of use to physicians in treatment but was of still greater use to the quack. The bottle of medicine bulked too large in medical therapeutics. Much of the medicine prescribed was therapeutically useless and was sometimes given to the exclusion of other important forms of treatment. Members of the medical profession also were over-credulous as can be seen in the ready sale for pills made out of the endocrine glands of animals. Prof. Dunlop emphasised the importance of using drugs whose action was well known and of following the fundamental principles of dietetics. In many disorders the prescription of a wise diet was infinitely more important than a prescription for medicine. Dietetics had accumulated a great deal of rubbish around it, but it was true enough that many diseases were caused by the fact that people did not take a sensible mixed diet.

IRELAND

(FROM OUR OWN CORRESPONDENT)

MEDICAL RESEARCH IN THE IRISH FREE STATE

FOR a considerable time past the several scientific bodies interested in medical research have been pressing the Minister for Local Government and Public Health to provide from the sweepstakes funds at his disposal adequate endowment to establish a scheme of medical research in the Irish Free State. The Minister was throughout sympathetic, but many legal and technical difficulties delayed decisive action. These difficulties have now been surmounted and the formation of a research council has been sanctioned. The body will be incorporated, and its personnel will be formed of representatives of the several universities and medical corporations, of the Royal Academy of Medicine in Ireland, and of persons nominated by the Minister. The body will have control of its own funds, and in the first instance will be given a grant of approximately £10,000 a year. Subsequently, if such a step should be considered advisable, the council will, it is hoped, be in a position to establish an institute for medical research. At first, however, advantage will be taken of the facilities provided by existing laboratories.

THE IRISH HOSPITALS SWEEPSTAKES

The draw of the nineteenth sweepstake in aid of the Irish hospitals was held in the Mansion House, Dublin, last week. In opening the draw Viscount Powerscourt, chairman of the committee of associated hospitals, stated that the total receipts of the sweepstake amounted to £2,706,291, of which the share for the hospitals would be £497,004. The receipts showed an advance of approximately half a million pounds over those for the corresponding sweepstake a year ago. The total amount now received for the hospitals from the first sweepstake in November, 1930, to the present is £10,115,287. A little more than half of this has been distributed to the hospitals, and the remainder lies for the benefit of the hospitals in the hands of trustees until a complete scheme of hospital service has been thought out and adopted. It is hoped that within the next two or three years enough funds will have accumulated to provide not only for the establishment of the necessary hospitals but for their endowment. Some two or three years ago the receipts seemed to be on the downward curve but subsequently they showed a remarkable recovery and the sweepstake just concluded brought in a better return than any since the spring of 1935.

A HOSPITAL ASSOCIATION FOR IRELAND

Last May a meeting was held of representatives, lay and medical, of a large number of the hospitals in Ireland, to discuss the project of establishing an association of Irish hospitals. The proposal was approved and a committee appointed to draft a constitution for the association. Last week, on Oct. 23rd, a further meeting of representatives was held and the draft considered. Agreement was come to as to the general objects of the association, which will include the establishment of a bureau of information on all matters connected with hospital administration, the provision of opportunities for discussion of matters connected with hospital administration, the publication of papers and reports dealing with such matters, coöperation with Government departments and with bodies with aims similar to those of the association, and coöperation in improving the hospital system generally. The further details of the scheme were held over for consideration. It is intended that the several hospitals which exist in the country shall become "members" of the association, and that the council shall consist of both lay and medical representatives. Prof. T. G. Moorhead is chairman of the provisional council.

PARIS

(FROM OUR OWN CORRESPONDENT)

THE CONGRESS OF HYGIENE

SEVERAL exceptionally interesting papers were read at the twenty-third Congress of Hygiene held at the Pasteur Institute between Oct. 19th and 22nd. Much of the first day was devoted to epidemiological studies, the first communication, by Dr. X. Leclainche, dealing with the epidemiology of the contagious diseases of man. There followed a report by Prof. Panisset on the epidemiology of the infectious diseases of animals. Much of the second day was devoted to associated vaccination against various diseases such as diphtheria and typhoid fever. In this connexion reference may be made to a paper on this subject published by Dr. G. Ramon in the *Presse Médicale* for Oct. 17th. He writes: "Thanks to the harmlessness and well-defined, fixed, and stable properties of the tetanus anatoxin which we introduced in 1923 at the same time as the diphtheria anatoxin, it is possible to realise in practice, under the best conditions, in human beings and domestic animals, that active immunisation against tetanus which has for so long seemed most desirable." It will be recalled that the French Academy of Surgery recently adopted the report of a commission on tetanus whose recommendations were definitely in favour of vaccination against tetanus with Ramon's anatoxin. Associated vaccination against tetanus, diphtheria, and typhoid fever in the French army became law in August of this year.

THE DECLINING DIPHTHERIA MORTALITY

Marcel Moine, statistician to the Comité National de Défense contre la Tuberculose, does not, fortunately, confine his statistical investigations to tuberculosis; and his most recent work deals with the decline in the diphtheria mortality, which he traces to Roux's curative serum and Ramon's preventive anatoxin. It is notoriously dangerous to quarrel with statisticians, even if they are of the comparatively mild French brand, but it is tempting to wonder if there are not many other important factors responsible for a state of affairs so promising that in Monsieur Moine's opinion there is a possibility of the almost complete disappearance of diphtheria in Paris. The vital statistics of France do not allow of a comprehensive reference to returns before 1906, when the notification of the causes of death was extended to the whole of the country. But the statistics for Paris alone go back much earlier, and it is possible to obtain comparable returns for the latter part of the last century. Serotherapy having been introduced in 1894, it is noteworthy that between 1884 and 1913 the diphtheria mortality declined by

88 per cent. in Paris. Between 1929 and 1935 there was a remarkable fall in the diphtheria mortality attributed by Moine in large part to Ramon's anatoxin. In 1929 there were 300 deaths from diphtheria, and during the next three years there was a slight and unsteady decline which, in 1933, brought these deaths down to 178. The corresponding figure for 1934 was 157, and for 1935 it was only 104. At this rate, and as far as Paris is concerned, there is good reason for accepting the hopeful prophecy already referred to. But nosologically as well as politically speaking we must never forget that Paris is not France.

COMBATING INFECTIONS IN CHILDREN'S HOSPITALS

In a communication to the Academy of Medicine on Oct. 13th, Prof. Robert Debré gave an account of 18 months' experience at the Hérold Hospital with a system whose details he described. A highly qualified assistant is appointed with the sole task of preventing hospital infections. To the temperature chart of every patient he attaches a special sheet on which records are kept of the contagious diseases against which each child is immune on account of previous illness or vaccination. A list is also kept of the infectious diseases to which each child is liable. Schick and Dick tests are carried out, Bordet-Gengou bacilli are sought by culture, and guinea-pig tests decide whether the bacilli found in the throats of alleged carriers are pathogenic diphtheria bacilli or not. Between July 1st, 1935, and Feb. 1st, 1936, this guinea-pig test showed 10 out of 28 children, suspected as diphtheria carriers, to harbour only pseudo-diphtheria bacilli. Another duty incumbent on this assistant is to give susceptible children the benefits of vaccination against such diseases as diphtheria and of passive immunisation against measles with the serum of convalescents. Since March, 1935, the serum not only from the convalescents from measles, but also that from convalescents from scarlatina, whooping-cough, and poliomyelitis has been given in large quantities at the Hérold Hospital. The success of this system of a hospital intelligence service run by a whole-time medical officer has been such that in the course of 15 months only 20 out of 677 children exposed to infection with measles have actually contracted it. Prof. Debré concluded with the prophecy that as far as children's hospitals are concerned, his special service for combating hospital infections will in the future prove just as indispensable as a hospital's social service.

THE LATE PROF. F. BORDAS

How little we know of many of our colleagues till they die! We all knew that Prof. Bordas was a name to conjure with in public health and pharmacology and allied sciences, but it has been left to the obituary notices to reveal to those outside these specialties the scope and importance of his work. He was born on Jan. 1st, 1860, and he died on Sept. 11th of this year in his son's home at Avignon after an illness of more than a year. He would have made a first-class artist or musician, and he continued to cultivate painting and music as hobbies throughout his life. But from the start of his professional career he gave himself up almost wholeheartedly to analytical chemistry, toxicology, hydrology, climatology, and associate sciences. At the age of 18 he went up to Cambridge whence he passed on to Paris. In 1883 he took a medical qualification, but he never practised as a clinician. In 1903 he was appointed director of the Laboratoire des Douanes et de la Garantie of the Ministry of Finance, and he remained at this post till his retirement in 1932. This appointment gave him the opportunity to organise a Service de la Répression des Fraudes et des Falsifications. His work on milk and water from various public health aspects made him the recognised authority in France on these subjects. During the war he was responsible for the sanitation of the entrenched forces about Paris. The honours he enjoyed included membership of the Conseil Supérieur d'Hygiène Publique. He was also one of the editors of that excellent monthly publication *Annales d'Hygiène Publique, Industrielle et Sociale.*

LONDON MEDICAL EXHIBITION

(Concluded from p. 1013)

Surgical Instruments and Accessories

(90) Allen and Hanburys Ltd. (Bethnal Green, E.) selected from their range of surgical instruments, appliances, and hospital equipment their newly designed, electrically heated instrument sterilisers, made of chromium-plated copper and stainless steel, with rounded corners and domed lid, and fitted with three-heat switch and automatic cut-out which operates if the water level falls too low; the A. and H. "Azoule" catgut; stainless steel ear syringes; and blood transfusion apparatus, including a three-way direct flow syringe.—(86) Allen and Hanburys (Acoustic Department, 48, Wigmore-street, W.) showed all types of hearing aids and emphasised the usefulness of their service of audiometer testing.—(59) Aural Appliances Ltd. (135, Wigmore-street, W.) demonstrated the Sonotone Hearing Aids, including a new double microphone model with a simple attachment which converts the instrument from bone to air conduction.—(30, 31) John Bell and Croyden (Arnold and Sons) (50–52, Wigmore-street, W.) had a very large variety of surgical instruments and hospital furniture, and particularly pointed out Mr. T. Young Simpson's anæsthetic inhaler, consisting of a modified Junker's bottle and face-piece with valve, so designed that it can safely be left to the nurse or patient to administer.—(20) John Bell and Croyden (Acoustic Department, 50, Wigmore-street, W.) had on view almost every make and type of hearing aid, and especially pointed out the Electric Ear, a new appliance for bone and air conduction, having the advantage of an almost silent background; it is made in several types suitable for most cases of middle-ear disease.—(57) British Alkaloids Ltd. (Winchester House, E.C.) showed their T.C.P. halogen and phenol antiseptic for external and internal use; they now make also a medicated toilet skin soap for conditions such as eczema.—(145) Clement Clarke Ltd. (16, Wigmore-street, W.) showed ophthalmoscopes and allied instruments, including the Foveoscope, for macula and detached retina examination; and a range of prosthetic appliances—artificial ears, noses, breasts, and fingers—made of fine rubber which stretches with natural movements.—(141) Stanley Cox Ltd. (11, Gerrard-street, W.) emphasised their Micro-Dynameter Diagnostic Galvanometer, which was on show in the Lecture Hall, and maintained that it was an entirely rational, sensible, and unmysterious instrument for the location of hidden foci of infection and fell into the same category with radiography as an accessory aid to clinical diagnosis; by its means a single infected tooth could easily be identified.—(167) H. E. Curtis and Son, Ltd. (7, Mandeville-place, W.), have found no way of improving their "Crossed hands" corset belt, but introduced the Celian nursing brassière, a convenient bodice, which can be lined with waterproof if desired and which enables the mother to nurse her baby without undressing.—(33, 34) Cuxson, Gerrard and Co., Ltd. (Oldbury, Birmingham), showed their surgical plasters,

ligatures, and medical sundries, including Ceraban adhesive self-supporting bandage; Variban Elastic Plaster Bandage; Cellanband paste-impregnated bandages; and Sanoid lubricating jelly.

(65) The Denver Chemical Manufacturing Co. (London, N.W.9) showed again their well-known and valued Antiphlogistine brand dressing, in its original form and also with picric acid, with ichthyol, and with beta-naphthol.—(134) Desoutter Brothers Ltd. (73, Baker-street, W.) showed a complete range of their light-metal artificial limbs, the value of which is already well known to the profession, and invited doctors to visit the factory and see the improvements which are continually being added.—(154) J. and E. Ferris Ltd. (33, Museum-street, W.C.) showed their artificial limbs and some new crutches, particularly an all-steel arm crutch of great strength but extremely light, with a useful armlet which holds the crutch to the upper arm and frees the hand but at the same time would snap in the event of a fall, and can be fastened back when not wanted.—(18a) Harman Freese (32, Great Dover-street, S.E.1) showed their chemical and mechanical contraceptives.—(162) Bruce Green and Co., Ltd. (14, Bloomsbury-street, W.C.), picked out from their display of ophthalmoscopes, retinoscopes, and allied instruments a useful self-contained electric headlamp, the battery being incorporated so that there is no flex to irritate or endanger the wearer.—(18) Theodore Hamblin Ltd. (15, Wigmore-street, Cavendish-square, W.) had on view a wide range of spectacles and ophthalmic instruments of all kinds, including the Salvoc non-splinterable lenses; Recumbent spectacles, for reading in the supine position; some new stereoscopic pictures; and a polarising pool-gazer for enabling anglers to see beneath the surface of water.

(4) Hanovia Ltd. (3, Victoria-street, S.W.) had a display of ultra-violet therapy apparatus, the chief interest centring in a new high-pressure electronic discharge arc incorporating 15 British patents and yielding great actinic intensity, with economy in current consumption and uniform output.—(38) Hawksley and Sons, Ltd. (64, New Cavendish-street, W.), had their usual display of diagnostic instruments and accessories, and introduced the Elliott Treatment Regulator, an ingenious new device for applying dry heat to the pelvis. The apparatus is simple and portable and circulates a constant supply of hot water through anatomically shaped rubber applicators. The pressure and temperature are under the physician's control, and the applicators are introduced collapsed and then filled up. The principle is simply that of putting a hot-water bottle into the vagina.—(17) Hinders Ltd. (174, Estcourt-road, S.W.6) showed metal, leather, and rubber foot supports of all kinds, particularly a new and ingenious rubber device for hallux valgus; the Hinders Ankle Vigger for supporting the ankle and instep; and an elastic plaster bandage.—(2) Holborn Surgical Instrument Co., Ltd. (26, Thavies-inn, Holborn-circus, E.C.), showed surgical instruments and appliances of all kinds, notably the Kifa suture clips and Peter's automatic applicator; an electro-surgical hand motor for bone surgery with attachment for inserting Kirschner wires; and Vapro glass boxes with rubber-lined lids to prevent the evaporation of spirit from instruments.—(110) The Inhalation Institute Ltd. (87, Eccleston-square, S.W.) drew particular attention to the value of their apparatus for administering oxygen with vaporised liquids in the treatment of asthma. The Humphris-Collison Radium Emanation Inhaler is devised for administering accurate doses of radium emanation by inhalation.—(143) Johnson and Johnson (Great Britain) Ltd. (Slough, Bucks) added to their well-known adhesive plasters and Band-aid an innovation in folded gauze for theatre and ward use: Nufold Gauze, consisting of hundred-yard lengths tightly folded in four thicknesses to four different widths, with all raw edges folded in.—(142) C. Davis Keeler Ltd. (47, Wigmore-street, W.) showed ophthalmological instruments of all kinds, including the Keeler-Cardell Polarised Ophthalmoscope, which is completely without reflex; a new light-prescribing equipment which enables the ophthalmologist to test his patient for various activities and to prescribe the actual intensity of light desirable for each; and a Catholysis Equipment for the treatment of retinal detachment and hay-fever, a combined attaché case outfit suitable for many purposes.

(137) J. F. Macfarlan and Co. (32, Bethnal Green-road, E.) had again on show their anæsthetic ether (Keith's), specially purified anæsthetic chloroform, and chloroform Brisettes for producing analgesia in labour.—(92) Monsol Ltd. (Vincent House, Vincent-square, S.W.) showed their germicidal preparations, Neo-monsol Liquid Germicide, with a Rideal-Walker coefficient of 6, which has proved useful in midwifery owing to its blandness and selective action on the hæmolytic streptococcus; and Monsola Nasal Compound, now available in a more attractive and convenient form.—(24) W. H. Pettifor (11, Victoria-street, S.W.) demonstrated his range of electrical aids for the deaf, and emphasised his personal test service. His latest model is a valve aid covered with cloth so that it can be used on the clothing.

(42, 43) Portable X-Rays Ltd. (Power-road, Chiswick, W.) reminded visitors that they had been in active operation for over twelve years and offer a twenty-four hour service every day of the year including Sundays and Bank Holidays. They drew attention to their stand by an interesting "composite man" made up of radiograms of the various areas.—(135) Radium Electric Ltd. (2, Stratford-place, W.) exhibited their Q-ray electro-radio-active dry compress, and introduced a new radium ray detector which detects the gamma rays in mild radium therapy by means of their excitation of a very rarefied gas in a small chamber.—(23) Rayner and Keeler Ltd. (100, New Bond-street, W.) had on view ophthalmological instruments of all kinds, many of them with ingenious new devices. There was a magnifying eye-piece for auriscopes; a trial frame with gear and pinion in the rims so that the lenses can be rotated easily and accurately; a convenient metal E which can be held by the patient and rotated in conformity with the "illiterate E"; and an interesting reading-glass with a light, from mains or battery, thrown on the page over which the glass lies.—(51) Reckitt and Sons, Ltd. (40, Bedford-square, W.C.), showed their Dettol germicide, a halogen derivative of xylenol dissolved in a saponified mixture of aromatic essential oils with a Rideal-Walker coefficient of 3. It is also supplied as a mouth-wash and gargle.—(12) W. J. Rendell Ltd. (161–165, Rosebery-avenue, E.C.) once again reminded practitioners of their reliable contraceptives, which have been known for over fifty years.—(88) The Scholl Manufacturing Co., Ltd. (182, St. John-street, E.C.), showed supports and appliances for the relief or correction of every kind of foot trouble, including arch supports for ordinary shoes, Toe-Flex for distorted toes and bunions, and Zino pads, medicated discs for corns and callosities.—(62) A. G. Sheldon and Co., Ltd. (3, Great Woodstock-street, W.), who provide a day and night service of surgical dressings on sale and hire, reminded visitors of their useful carton dressings in portable form for minor operations, and introduced Medilintex, a new poultice.—(153) Short and Mason (Aneroid Works, Walthamstow, E.) gave working demonstrations of the Pavaex, a passive vascular exerciser for promoting adequate collateral circulation in the extremities. It is made of heat-resisting glass, with cuffs to fit any thigh or arm, and weighs less than 60 lb.

(50) T. J. Smith and Nephew Ltd. (42, Tavistock-square, W.C.) had their excellent range of Elastoplast plasters and dressings. Semiplast—half-spread Elastoplast—is covered with plaster over only half the width of the bandage. When these bandages are applied spirally only the first turn of plaster comes in contact with the skin. This firm now supply narrow

widths of Elastoplast on spools for strapping; and Elastoplast emergency burn dressings, consisting of pads of gauze and lint, medicated with picric acid, on the elastic plaster base. Cellona Plaster-of-Paris bandages and Cellona splints were on view.—(35) Surgical Equipment Ltd. (successors to Standard Surgical Manufacturing Co.) (Westfields-road, Western-avenue, W.3) showed stainless steel instruments, and particularly drew attention to their range of sterilisers and dressing drums for electric, steam, and gas heating with full automatic control. They vary from 7½ in. portable sterilisers to 20 in. high pressure ones.—(6) The Surgical Manufacturing Co., Ltd. (83, Mortimer-street, W.), showed surgical instruments and medical requisites, many of them of new design, including the Universal Syringe Set, suitable for every purpose where a Record type syringe might be used; a series of rectal and vaginal specula, with an entirely new method of illumination, which can be sterilised and interchanged throughout the whole range; the Nitrox Apparatus for analgesia in midwifery and minor surgery; and the Surgman British knife handles and blades.—(36A) Edward Taylor Ltd. (Monton, Lancs) emphasised the value of the Flexoplast elastic adhesive bandages, strapping, plasters, and wound dressings, by displaying photographs of "Henri's Choice," a remarkable horse which broke its neck a few inches below the skull and, after due treatment with Flexoplast, won a flat race, although hitherto it had been known as a steeplechaser!—(97) Thermogene Co., Ltd. (160, Piccadilly, W.), presented again their medicated wadding, and Thermogene Brand Vapour Rub, which can be used as an inhalant and as a liniment.—(161) Victor X Ray Corporation Ltd. (15–19, Cavendish-place, W.) showed the Victor Model F Portable Shock-proof X Ray Unit, emphasising its convenient size, simplicity for use by the general practitioner, and complete safety; also their Inductotherm Short-wave Diathermy Unit, a portable electron tube oscillator, which can be equipped to deliver a cutting and coagulating current.—(105) "Waites" Antiseptic Local Anæsthetic (Cook Laboratories, New York) showed their Procaine solution in bottles, ampoules, and cartridges, supplied also in combination with adrenaline and Cobefrin. They also showed an improved ejector type of cartridge syringe.—(123) Watson and Sons (Electro-Medical) Ltd. (Sunic House, Parker-street, W.C.) particularly emphasised their short-wave therapy apparatus, the Novotherm 300, a valve-operated apparatus having an output of 300 watts and working at 6 m. wave length; they also showed their Sunix and Sunic Junior X ray outfits.—(16) The Wilson Rubber Co., Ltd. (85, Buckingham-avenue, Slough), reminded visitors of their British rubber gloves and accessories, on the manufacture of which the company concentrates its energy and ingenuity. They supply operating gloves, post-mortem gloves, obstetrical gloves, and tubing.

Foods, Drinks, and Vitamin Preparations

(100A) Allen and Hanburys Ltd. showed their scientifically arranged series of Allenburys foods, milk food with additional iron; malted rusks; beef juice; and Cereal, which is a concentrated digestible nutrient, ready cooked, prepared from whole wheat and barley malt with calcium, phosphorus, iron, and vitamins B and D.—(101) Bengers Food, Ltd. (Otter Works, Manchester), showed their farinaceous predigested food, which is now also prepared in a biscuit form containing a suitable quantity of Benger's Food as prepared with fresh new milk; and their salt-free essence of rennet, which can be used to make junkets of many flavours.—(93) Bovril Ltd. (148–166, Old-street, E.C.) were familiar exhibitors with their well-known beef preparation; they asserted, without risk of contradiction, that its medical uses are illimitable.—(84) Brand and Co., Ltd. (Mayfair Works, Vauxhall, S.W.), showed their essences of beef and chicken, meat juice, and calf's foot jellies, and emphasised the value of Brandox, a carefully balanced meat extract containing fibrous meat residue hydrolysed to a perfectly soluble state, with added vitamin malt.—(122) British Cod Liver Oil Producers (Hull) Ltd. (St. Andrew's Dock, Hull) showed their Sol-vit-ax cod-liver oil, which represents all the cod-liver oil produced at sea on board the Hull vessels, which are powerful enough to operate in Icelandic waters, where the cod liver has a higher vitamin content than that obtained from Norwegian waters. The brand has definitely guaranteed minimum vitamin potencies of 1000 international units of A and 100 international units of D per gramme.—Cadbury Brothers Ltd. (Bournville) had this year established themselves in the Lecture Hall to give more scope for their popular custom of dispensing cups of Bourn-vita and samples of their chocolate.—(46) Corn Products Co., Ltd. (Bush House, W.C.), showed their Dextrosol Brand Dextrose B.P. and Liquid Glucose B.P., and their Karo syrup sugar food for infants and children.—(77–79) Cow and Gate Ltd. (Cow and Gate House, Guildford, Surrey) drew particular attention to their Cerex C.G., a cereal for the weaning period made from selected malted wheat flour and cod-liver oil; and their Glucose A.D. preparation of dextrose fortified with vitamins A and D and calcium glycerophosphate. They have also prepared a humanised milk food for young and delicate babies, and Allergilac for allergic infants. Their chocolate milk is still a popular beverage, and their Brestol, an emulsion of 50 per cent. fats, 40 per cent. dextrose and orange juice is indicated for cases of milk modification and insufficient weight.—(115) Energen Foods Co., Ltd. (Willesden, N.W.), showed their well-known products for all medical dietaries, including fine water biscuits and a sugarless grape-fruit marmalade; they have published a new dietary series giving indications and specimen menus for a variety of conditions.—(72) Heudebert Dietetic Products (Mount Pleasant, Alperton, Middlesex) reminded visitors that their products are backed by manufacturing experience of over forty years and controlled by the most rigorous laboratory supervision. They prepare special products to meet the requirements of all cases where a diet is needed. They introduced Fedulyse, a very easily prepared drink composed of germinated barley, milk casein, and caffein-free coffee, designed to prevent distension.—(108) Hovis Ltd. (London) had an exhibit showing the processes whereby wheat is turned into flour and the wheat germ, containing vitamin B, is retained in Hovis bread to the proportion of 25 per cent.

(112) Ingram and Royle Ltd. (45, Belvedere-road, S.E.) are importers of all natural mineral waters, including Vichy-Célestins, Contrexéville-Pavillon, Karlsbad, and Hunyadi Janos.—(49) Keen, Robinson and Co., Ltd. (Carrow Works, Norwich), pointed out to visitors their Almata food for infants and mothers, which is now no more expensive than ordinary foods; their Waverley Oats, and Semolina, and their popular mustard ointment. They have in addition to the Robinson's "Patent" Barley a new Lemon Barley Water, from which a pleasantly flavoured barley drink can be made by simply mixing with water.—(52) Libby, McNeill and Libby Ltd. (8, Great Tower-street, E.C.) refreshed visitors with delicious fruit juices, and showed their homogenised foods which have been specially prepared for delicate baby digestions by exploding tough cell walls: No. 1 contains peas, beans, and asparagus tips; No. 2 contains stringless beans, pumpkins, and tomatoes; No. 3 contains carrots, spinach, and peas. Libby's Homogenised Cereal is made of fresh whole milk, whole wheat and germ, and soya bean. The fruit combination contains prunes and pineapple and lemon juice, and the soup preparation, specially designed to be anti-anæmic, contains vegetables, barley, and chicken liver. The makers claim that these six tins constitute a complete solid food diet.—(146) The Marmite Food Extract Co., Ltd. (Walsingham House, Seething-lane, E.C.), reminded visitors that their inexpensive yeast preparation is

recommended in most invalid diets and listed on the diet sheets of many hospitals. It stimulates the appetite, and provides vitamin B and also an anti-anæmic factor. Its value for expectant and nursing mothers is indicated by experiments conducted by the National Birthday Trust Fund in depressed areas. Extensive clinical trial in the tropics has shown its special success in the treatment of macrocytic hyperchromic anæmia.—(68, 69) Nestlé and Anglo-Swiss Condensed Milk Co. (6–8, Eastcheap, E.C.) had an illuminated stand to remind doctors that Nestlé's milk is a pure, rich milk, plus sugar, valuable for delicate children; that "Ideal" Milk (Unsweetened) is a pure homogenised and sterilised milk; that Nestlé's Milk Food contains mineral salts and vitamins; and that Lactogen is identical in all important respects with breast milk.—(73) Oxo Ltd. (Thames House, Queen Street-place, E.C.) showed their well-known beef extracts in the ordinary and invalid forms; their Lemco unseasoned concentrated beef extract; and their meat juice and beef essence.

(25a, 26) Scott and Bowne Ltd. (10, Stonecutter-street, E.C.) showed their emulsion of cod-liver oil with hyposulphites of lime and soda; Halivite halibut-liver oil biologically standardised to a potency of 45,000 A and 3000 D international units and supplied in plain oil and pill form. Scott's Malt and Oil is a new homogenised form of cod-liver oil with extract of malt, which pours easily from a narrow-necked bottle and contains vitamins A, D, and B.—(126–130) Trufood Ltd. (Bebington, Wirral, Cheshire) reminded doctors that their Humanised Trufood gives a product almost identical with breast milk and that its proteins retain their original colloidal condition.—(125) Virol Ltd. (Hanger-lane, Ealing, W.) attracted the attention of visitors to their vitamin food by an ingenious illuminated model showing coloured "droplets" of marrow fats, malt extract, eggs, lemon and lime and iron salts running continually into the Virol bottle.—(85) Vitamins Ltd. (23, Upper Mall, W.) showed their Bemax wheat germ vitamin-B preparation, claiming that it is the only vitamin food assayed daily; they also showed Vitamin-B_1 Concentrate, an active adsorbate on an otherwise inert vehicle, standardised at 200 international units per gramme, which has been found useful in polyneuritis and arthritis; and Fertilol, oil of wheat germ, which does not deteriorate with keeping.—(89) Vitmar Ltd. (Southfields, S.W.) showed Callard's foods for diabetic, obesity, and ketogenic diets, particularly the new sugarless Casoid chocolates and Christmas fare, including Christmas pudding and mince-pies, for the diabetic: also Frame Food Health Bread.

Books, Spas, and Miscellaneous

(21, 22) Baillière, Tindall and Cox (7 and 8, Henrietta-street, W.C.) showed a full range of books, including those published by themselves and by Messrs. Edward Arnold and Co.; A. and C. Black Ltd.; Cassell and Co., Ltd.; J. B. Lippincott Ltd.; E. and S. Livingstone; Longmans, Green and Co., Ltd.; Medical Publications Ltd.; William Wood and Co., Baltimore, Md.; The Williams and Wilkins Company, Baltimore, Md.; and Mr. Charles Thomas, Springfield, Ill.—(60) Bath has a new and freshly equipped electrical department which is proving a valuable addition to the extensive balneotherapeutic facilities of this spa.—(53) Buxton recalled to their visitors their radio-active thermal water at 82° and their chalybeate spring. The Clinic for Rheumatism, which opened in June, 1935, has been kept busy all the year. A new deep pool for manipulative exercises has proved a great boon to badly crippled patients, some of whom have learned to walk under the water before they were able to walk on dry land.—(9) Gas Light and Coke Co. (Horseferry-road, S.W.) showed a range of gas fires in twelve colours; and a useful automatic incinerator for casualty wards and consulting-rooms: opening the door turns up the gas, which burns for five minutes so that the dressings are thoroughly dried, and then goes out, leaving them burning by themselves. The incinerator is supplied in several sizes and finishes.—(152) Harrogate made a special feature of the diagnostic value of photographs of the capillaries in the nail-bed. These manifest varying forms in different diseases, and it seems probable that the beautiful photographs taken by Harrogate's permanent scientific officer will prove valuable in diagnosis.—(15) The Lancet Ltd. (7, Adam-street, Aldelphi, W.C.). This journal showed its current number and a selection from books published in recent years, among them "Modern Technique in Treatment," Vol. III., "Clinical Interpretation of Aids to Diagnosis," Vols. I. and II., and "Prognosis," Vol. I. On view also were copies of the Final Report of The Lancet Commission on Nursing.

(32, 40, 41) H. K. Lewis and Co., Ltd. (136 and 140, Gower-street, W.C.), had a large display of new and standard works, as well as their popular ranges of medical stationery. They picked out for special notice Gottwald-Schwarz, Goldberger, and Crocker's "Diagnosis and Non-Operative Treatment of Diseases of the Colon and Rectum"; Hamilton Bailey's "Diseases of the Testicle"; Thompson's "An Introduction to the Process of Disease"; Lyle and Jackson's "Orthoptic Treatment of Squint"; the first two "Reports on Chronic Rheumatic Diseases" edited by C. W. Buckley; and the first two series of "Treatment in General Practice" reprinted from the *British Medical Journal*.—(76) The Medical Press and Circular (8, Henrietta-street, W.C.) drew attention to their four quarterly symposia, each being a 24-page supplement of the journal; and to their special numbers, which are enlarged issues devoted to one subject. They are also publishing now the third series of their Modern Treatment in General Practice articles.—(54) The Medical Sickness Annuity and Life Assurance Society Ltd. (300, High Holborn, W.C.) had a stand to remind doctors of their useful services in providing all kinds of sickness and life assurance, and their loan schemes for the purchase of practices and houses.—(25) Oxford University Press (Humphrey Milford) (Amen House, Warwick-square, E.C.) showed a selection of books published by their presses and those of some American universities, including "Early Diagnosis of Malignant Disease," by Cade; "Paget's Disease of the Nipple," by Inglis; "Endocrine Organs," by Rolleston; and the sixth edition of Wright's "Applied Physiology."—(156) The Practitioner (6–8, Bouverie-street, E.C.) drew particular attention to its special number on advances in diagnosis and treatment, published this month, as well as mentioning its other special numbers and its many useful contributions to the information of the practitioner.—(157) Sparklets Ltd. (Thames House, Millbank, S.W.) had added to their artificial respiration apparatus and Hygienator a new inexpensive pocket apparatus for the subcutaneous injection of oxygen, which attracted much interest.—(98) John Wright and Sons Ltd. (Bristol) selected from among their publications Chamberlain's "Symptoms and Signs in Clinical Medicine"; Bailey's "Physical Signs in Clinical Surgery" and "Emergency Surgery"; the *British Journal of Surgery;* and the "Medical Annual."

British Science Guild.—The 12th annual Norman Lockyer lecture will be given by Lord Rutherford, O.M., F.R.S., Cavendish professor of experimental physics and director of the Cavendish laboratory at the University of Cambridge, in Goldsmiths' Hall, Foster-lane, London, E.C., on Thursday, Nov. 12th, at 4.30 P.M. He will speak on science in development. This is the last Norman Lockyer lecture which will be arranged by the Guild as an independent body. In future the lecture will be carried on under the auspices of the British Association for the Advancement of Science. Tickets for Lord Rutherford's lecture may be had from the secretary of the Guild, 535–537, Abbey House, Victoria-street, London, S.W.1.

PUBLIC HEALTH

Coming Factory Legislation

It is thirty-five years since the passing of an Act consolidating and amending factory legislation. There have been many attempts to remedy admitted evils and to fill in the gaps and deficiencies of existing legislation, but all these Bills have so far failed to reach the statute book. The Government has promised to introduce a Factories Bill next session, although it remains to be seen exactly when Parliamentary time will be found for it; and the text of the Bill has not yet been published. Two letters in Tuesday's *Times* deal with the limitation of working hours.

The first is from the Factories Bill Campaign, organised by a committee of the British Association for Labour Legislation, and is signed amongst others by Miss Margaret Bondfield, Sir Wyndham Deedes, Prof. R. H. Tawney, and Miss Gertrude Tuckwell, chairman of the Campaign. In addition, it is pointed out, to higher minimum conditions for health, safety, and welfare of workers in factories and workshops, the most pressing questions are likely to be hours of employment, meal-times, spells of work, and holidays. At the moment it is still legal to keep women and young girls at work from 8 A.M. to 8 P.M., and on Saturdays from 8 A.M. to 4 P.M., with, for the women, possible overtime; and there are still factories which take full advantage of the law and in which these monstrous conditions obtain. The idea behind this campaign is to give a means of expression to the smaller organisations and to individuals whose opinions might otherwise pass unheard, and correspondence is invited addressed to the hon. secretary of the Factories Bill Campaign, 32, Primrose Hill-road, N.W.3.

The other letter, signed amongst others by Dr. Rhoda Adamson, Lord Balfour of Burleigh, Lady Barrett, Dame Louise McIlroy, Dr. Jane Walker, and Dr. Douglas White, expresses hope that the forthcoming Factories Bill will be directed to securing a proper limitation of hours for all adult workers and a further and stricter limitation for young persons. A Bill framed on the conventional lines of the past must, it is said, inevitably fail in that real protection of workers which (quoting the Archbishop of York) we must secure now, especially for young persons. What is needed is to legislate for men and women equally, and then to set up for young persons those conditions which they need—namely, special precautions or prohibitions in the matter of hours, dangerous processes, special welfare, and technical supervision.

The Supply of Midwives

The Minister of Health presided on Oct. 22nd at a conference on the Midwives Act and its operation, when Dr. J. J. Buchan, medical officer of health for Bradford, opened the discussion. It was, he said, upon the judicious selection and appointment of suitable persons as public midwives that the whole success of the scheme depended; most authorities would prefer midwives who had been trained as nurses, but the supply of trained women was limited, despite the 54,000 names on the roll. The profession of midwifery had for long held out such poor rewards that it had come to be regarded as a natural calling for women whose standard of efficiency was not very high. The local authority was therefore faced with the fact that many of the midwives in practice to-day would be unable to conform to the standard expected of them under the new conditions of employment. Of the 15,000 practising midwives about 6000 are occupying positions in hospitals or in the midwifery service, and some 5000 more will be required; unfortunately many of the women on the roll, who had not given notice of their intention to practise because of existing conditions, had chosen some other career and were not now available. Available for the new service are the women now in practice plus a small number recently qualified who will be attracted to the work. There must of necessity be a transition period until the supply of well-trained women becomes sufficient. In the meantime two classes of midwives are likely to exist in the service of local authorities: (1) the general-trained midwife fully qualified and experienced who will ultimately form the whole staff; (2) the practising midwife not general-trained who has been taken over because of the dearth of suitable applicants in the first class. In arranging work under the Act Dr. Buchan suggested that in all but the smallest areas the midwives should be grouped in districts so that one midwife of a group may act in emergency for another. The number of midwives should suffice for attendance on all the births in the district on the assumption that no midwife books more than two cases a week or more than six cases in a month. A number of relief midwives would be required for holiday duty, sickness, and emergencies.

Tuberculosis in Lancashire

The county of Lancaster, with a population of 1·8 million people and an area of just over one million acres, has a unified tuberculosis scheme in which the dispensary is closely combined with the hospital and sanatorium. The whole county is served by teamwork, each tuberculosis officer having beds like any private consultant. Dr. G. Lissant Cox, who has charge of the scheme, has issued for many years in succession a report which is worthy of study. This year he has followed up for five years the after-histories of the new patients of 1930. The inquiry relates to all known cases occurring during 1930, whether they come under the county scheme or not, but all having a residential qualification in the county. How they fared is set out in the form of a chart which is very easy to follow. Out of the total number (2734) of these patients 75·2 per cent. came under the county scheme, while in a further 4·3 per cent. the notification was cancelled after some months of observation. The reasons why 20·5 per cent. of the gross number did not come directly under the scheme were (*a*) cases reported at death only: 3·9 per cent.; (*b*) cases in mental hospitals: 4·8 per cent.; (*c*) cases dying within several (average 3) weeks of notification: 6·6 per cent.; (*d*) a small miscellaneous group: 2·6 per cent.; and (*e*) patients declining treatment under the scheme: 2·6 per cent. In view of the fact that treatment is voluntary the percentage of 2·6 declining treatment is remarkably low; the majority of these 70 patients had in fact special facilities for proper means of prevention and treatment. Of the 1230 pulmonary cases 69·5 per cent. received one or more periods of sanatorium or hospital treatment. Of the 826 non-pulmonary cases about nine-tenths received special treatment. Of the net number (1097) of definite pulmonary cases 63·1 per cent. died from tuberculosis within the five years (39·7, 10·1, 5·8, 3·6, and 3·9 in the first and succeeding years). Of the net number of definite non-pulmonary cases 10·7 per cent. died from tuberculosis within the five years (6·9 per cent. within the first year). Dr. Cox's dry comment is: This survey emphasises the importance of prevention. But the *figures are really very interesting.*

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 17TH, 1936

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0; scarlet fever, 2300; diphtheria, 1308; enteric fever, 53; pneumonia (primary or influenzal), 751; puerperal fever, 44; puerperal pyrexia, 114; cerebrospinal fever, 14; acute poliomyelitis, 24; acute polio-encephalitis, 3; encephalitis lethargica, 5; dysentery, 29; ophthalmia neonatorum, 90. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Oct. 23rd was 2943, which included: Scarlet fever, 1061; diphtheria, 886; measles, 41; whooping-cough, 339; puerperal fever, 17 mothers (plus 8 babies); encephalitis lethargica, 284; poliomyelitis, 3. At St. Margaret's Hospital there were 15 babies (plus 11 mothers) with ophthalmia neonatorum.

Deaths.—In 122 great towns, including London, there was no death from small-pox, 3 (0) from enteric fever, 2 (0) from measles, 2 (1) from scarlet fever, 9 (1) from whooping-cough, 37 (3) from diphtheria, 58 (13) from diarrhœa and enteritis under two years, and 44 (12) from influenza. The figures in parentheses are those for London itself.

The deaths from enteric fever occurred at Portsmouth, Newcastle-upon-Tyne, and Tynemouth. Deaths from diphtheria were reported from 21 great towns; Liverpool 5, Manchester and Oldham each 3.

The number of stillbirths notified during the week was 244 (corresponding to a rate of 38 per 1000 total births), including 40 in London.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index.

FROM A DEPARTMENTAL DOCTOR

V

COBBLERS' children are proverbially supposed to be worse shod than any others; but doctors' children, whether or not they are worse doctored than those of other people, rank pretty high in the statistics of health and survival. There are perhaps not enough of them. But probably the medical training and subsequent practice of medicine does tend to make the doctor at least a moderately good parent. There appears, at any rate, to be no such violent reaction on the part of doctors' children from their fathers' avocation as occurs elsewhere, notably perhaps in the case of clergymen. On the contrary, there seems a rather consistent tendency for the boys and girls of doctors to become doctors themselves, though possibly not in the particular branch of medicine to which their parents belong. The children of the general practitioner, having experienced the rough and tumble of postponed or interrupted meals and recreations and the ring of the night bell, may resolve to become consultants; and the offspring of the consultant, listening to dire stories of the time that must elapse before they can earn a reasonable living, may decide to become general practitioners.

* * *

But the fact that such a relatively large number of medical children do follow in their fathers' footsteps may perhaps be taken as some sort of tribute to doctors as parents. It does not follow, of course, that they are entitled to any particular credit for this. If they have not hectored, or coddled, or over-analysed their families, it may well have been because they were too busy or too tired to do so. They have also had the advantage, lacked by most other parents, of having professionally dealt with a good many children before they themselves possessed any. The average young man, indeed, between 18 and 25, whatever may be his latent inclinations, is seldom particularly interested in children. His athleticism, his professional preoccupations, his *dalliances* or courtships, absorb his attention; and an interest in children, particularly of the younger sort, may even appear to him slightly effeminate. But with the medical student it is otherwise; and though it may be rather amusing to watch his first restraints and reactions when his work brings him into touch with children in the wards or out-patient departments, it is both a common and delightful spectacle to see some small boy or girl absorbing the attention—and presently the affections—of half a dozen clerks or dressers, not to mention house physicians or house surgeons. There may even be a competition for favours, under the approving eye of some usually awe-inspiring sister; and not many doctors—and perhaps no successful ones—emerge from their hospitals without a genuine love of children.

* * *

And this recalls an old friend, who had perhaps, more than most young men, gone the pace in various parts of the world, but who had ultimately evolved into a very able and extremely successful general practitioner; and a vision returns of his beaming and perspiring countenance at the end of his *4000th* confinement. It was a hot summer day. He was stout and tired. But he sat for some minutes gloating over the baby as though it had been a jewel of some rare and hitherto unseen kind. And it was always so, he said—a sight that had never become stale for him, just as a mother's first moment of baby-realisation still remained for him earth's loveliest picture. His was the sort of practice that brought to him many young married women, annoyed at the discovery that they were about to become mothers, and asking for help in avoiding their fate. Needless to say they got none, direct or indirect. Instead, he was in the habit of *making a bet* with them that, in a year's time, nothing would induce them to change their lot; and as far, at any rate, as his own immense practice was concerned, not even the brightest and goriest-nailed of the bright young things had ever come back to claim it.

He died not long ago, ostensibly of pneumonia, but really of over-popularity and a failure to take sufficient holidays; and his success was due, though *he was a competent physician*, to the fact that he was a first-rate practical psychologist. It is probable that he had never read a line of William James, Freud, Jung, Adler, or MacDougall, and that his knowledge of the Behaviourists and the Conditional Reflexists was as nearly nil as made no difference. But he had the two essentials of the practical psychologist, lacking which such knowledge would have availed him very little—intuition, which cannot, alas, be acquired, and a real love for his fellow human beings. He was the sort of man to whom people naturally told things—to whom, since the beginning of the world, men have always told things—in trains and dug-outs, at the sides of race-courses, in the foyers of theatres, as well as in consulting-rooms. And no other sort, however academically informed in the theory and practice of psycho-analysis, is ever likely to be of much practical use, in the psychological sense, to humanity. They are also the sort of people with whom children are instinctively at ease; and, in the selection of a consulting psychologist, there might well be a poorer test than this. Apart from his printed works that they haven't read, and the letters after his name that mean nothing to them, does he, or does he not, possess the It to which children are drawn as by a magnet?

* * *

That is not, of course, to decry so-called "modern psychology," bravely struggling through its yeasty adolescence of conflicting and indefinite definitions; and it has certainly achieved one notable victory. It has already transferred, thanks to its fascination for novelists, preachers, and teachers, various abnormalities, awkwardnesses, and shynesses from the realm of a hushed moral obloquy. It has coined the blessèd word "complex" that at least lends itself to tolerance and ordinary conversation. And it appears to be tending, like an older Psychologist before it, to set a child in its midst. If the child survives, as it probably will, it might have done a good deal worse.

⁂ *During next month A Doctor in Retirement will be responsible for these columns.*—ED. L.

CORRESPONDENCE

ŒSTRIN IN TOXIC GOITRE

To the Editor of THE LANCET

SIR,—I can confirm the results of Dr. A. W. Spence on the action of œstrin in toxic goitre, published in your last issue. Between November, 1934, and November, 1935, I investigated the effect of œstrin on thirteen patients aged 11 to 60, and including one male, the usual dose being 125,000 international units intramuscularly of Dimenformon (supplied by the kindness of Dr. Macbeth of Organon Laboratories) given daily for periods of one to three weeks. Two difficulties in the estimation of the value of a special form of treatment in this disease are the fact that complete bed rest is a most powerful therapeutic measure, converting most mild and moderate cases temporarily into something near normal, and the fact that spontaneous variations in the symptoms are common. Estimations of basal metabolism I have found not always reliable as a guide to progress, in that there may be wide fluctuations in the readings not paralleled by symptoms; this is also apparent, so far as the pulse-rate is concerned, in Dr. Spence's case records. Neither in mild nor severe cases, after a control period of rest, was I able to demonstrate, in the time available for treatment, a favourable action of œstrin, or at least none that could be accepted as more than natural to the course of the disease. It may be added that when finally preoperative iodine was given, no further improvement was noted in most cases, though of course it should never be omitted for that reason.

I am, Sir, yours faithfully,

Bournemouth, Oct. 24th. HAROLD COOKSON.

COD-LIVER OIL TREATMENT OF WOUNDS

To the Editor of THE LANCET

SIR,—The point was raised by Dr. Heald in his letter to THE LANCET of Oct. 17th that the use of cod-liver oil in the treatment of wounds was attended by the disadvantage of the unpleasant smell of the rancid oil. The reason for the virtue of cod-liver oil is by no means clear. At present it appears to be doubtful whether vitamins play any part. I should like to suggest that rancidity itself may be the therapeutic agent. Rancidity is commonly accompanied by the development of "active oxygen." A peroxide number of 500 or more can readily be induced in cod-liver oil. Other oils, however, may reach considerably higher values for active oxygen. For example, wheat-germ oil has been prepared in this laboratory with a peroxide number of 1000. That is to say, the oil is equivalent to 3 per cent. hydrogen peroxide. The oxidised oil is almost colourless and possesses a somewhat pleasant smell. As a chemist, I should like to suggest that the use of wheat-germ oil or an oxidised derivative from it might meet the difficulty raised by Dr. Heald. A clinical trial would be of great interest.

I am, Sir, yours faithfully,

MAGNUS PYKE,
Chief Chemist, The Research Laboratories
(Vitamins Ltd.)
Hammersmith, W., Oct. 22nd.

To the Editor of THE LANCET

SIR,—In your issue of Oct. 17th Dr. Heald draws attention to the fact that cod-liver oil treatment for wounds had been used in the Royal Free Hospital with good results as far back as 1922, the only complaint against its use being the nauseating smell of the dressings. May I be allowed to mention that Dr. Löhr of Magdeburg, who reintroduced the treatment, employs against the stench a few drops of turpentine applied to the dressing and renewed from time to time. This has a very good effect.

I am, Sir, yours faithfully,

Weil am Rhein, Oct. 22nd. E. HEIDENREICH.

CHILDREN'S SPECTACLES

To the Editor of THE LANCET

SIR,—One of the great difficulties met with in fitting children with spectacles is that it has to be done during the growing years. So that it often happens that the frames soon begin to cause damage. The People's League of Health, as you have noted (p. 960), is doing good work in calling attention to the bad effect of ill-fitting frames, and such as are easily bent or twisted, but only in connexion with the sight. It must not be forgotten that the nose is a factor to be reckoned with. One of my patients, just turned six and small for her age, had seven marks from her glasses—on the bridge and sides of the nose, over the malar bones, and behind the ears. Many are the faces to be seen with deep indentations over the root of the nose. The thicker the lenses the deeper the dents. Sometimes the diameter of the circular lenses is so large that, as in the case above, there is insufficient room for the nasal passages between them. The tendency then is to give up nasal breathing and keep the mouth open, bringing a further toll of ocular troubles in its train.

In the *Proceedings* of the Royal Society of Medicine for September, 1936, a case is reported by T. Colver (for Dr. Donald Paterson) of a child, aged 2½, who was sent to the eye department for swelling of the lids, &c. At the operation pus welled out from the interocular space from the ethmoidal cells. The correlation between the eyes and the nose is no recent discovery. The poet Cowper many years ago emphasised it in a poem entitled "Report of an Adjudged Case," beginning

> "Between nose and eyes a strange contest arose."

The affair has seemingly not yet been settled.

I am, Sir, yours faithfully,

Wimpole-street, W., Oct. 23rd. OCTAVIA LEWIN.

SILVER NITRATE FOR BURNS

To the Editor of THE LANCET

SIR,—While reading with interest Dr. Kissmeyer's account in your last issue (p. 985) of the use of silver nitrate ointment for the treatment of burns, I could not but be struck by the fact that he admits that this treatment causes "very little pain" to the patient. I have not tried this ointment, as at St. Thomas's Hospital we have for several years abandoned grease in the treatment of burns and scalds, but in my experience the silver nitrate treatment is invariably accompanied by considerable pain and irritation. Why not use a suitable preparation of tannic acid? This not only allays all pain, but avoids the disadvantages and dangers of an ointment in the treatment of burns and scalds.

I am, Sir, yours faithfully,

Harley-street, W., Oct. 23rd. PHILIP H. MITCHINER.

THE CHANGING HOSPITAL POPULATION

To the Editor of THE LANCET

SIR,—In the second paragraph of an article under this heading in your issue of Oct. 10th (p. 876), dealing with my health report for 1935, confusion has evidently existed in the writer's mind between Withington Hospital and Withington Institution; the former is the hospital, the latter is the old workhouse. Both are run by the public health committee, but the institution is a delegated function from the public assistance committee. The hospital contains 1293 beds; the institution contains 1200. It is the institution, not the hospital, which has been so largely empty since the transfer in 1930. The hospital is continuously full, and the demand for beds for acute illness is constantly increasing. This increased demand has been met by the transfer of some of the chronic sick to the empty blocks in the institution—a process which has provided additional hospital accommodation without the necessity of new building.

I am, Sir, yours faithfully,

R. VEITCH CLARK,

Oct. 21st. Medical Officer of Health, Manchester.

*** Dr. Veitch Clark's letter removes an element of confusion which is apt to arise between the general meaning of the word "*institution*" and its special significance in poor-law terminology. Fortunately the essential point made in the paragraph to which he refers remains unaffected, namely, that it has been found possible to accommodate more of the acute sick by transferring the chronic sick to accommodation formerly reserved for the healthy or infirm inmates.—ED. L.

PROGNOSIS OF DISSEMINATED SCLEROSIS

To the Editor of THE LANCET

SIR,—It is interesting to compare the following data derived from a series of cases attending the Midland Nerve Hospital, Birmingham, with those of Dr. W. Russell Brain in his article on the prognosis of disseminated sclerosis in your issue of Oct. 10th.

Of these, 44 were females and 51 males. In each the average duration of the disease is approximately 9½ years. There were four deaths, two males 9 years, 6 years, and two females, 9 years and 6 months respectively, after the onset of the disease. As no autopsies were carried out, it is difficult to say whether the deaths were directly attributable to the disease. A classification of the symptoms with respect to onset showed: in the females, 23 motor, 2 motor plus visual, 13 visual, 1 motor plus sensory, 3 sensory, 1 vesical; in the males, 33 motor, 5 motor plus visual, 7 visual, 3 sensory, 1 speech, 1 vesical, 1 motor plus vesical.

From these figures the onset with visual symptoms (mostly the result of acute retrobulbar neuritis) is 24 per cent. in males and 34 per cent. in females—i.e., slightly higher in females. One must be careful not to include, as of visual onset, cases with a previous history of error of refraction only, or strabismus of purely muscular origin. Of the cases alive, 10 females and 26 males are bedridden, have to make use of an invalid chair, or have great difficulty in walking. In 15 cases the disease has been in existence 15 or more years, in 2 for 22 and 26 years respectively, both these cases being now bedridden. The treatment given was protein-shock therapy (milk or Neuroyatren injections), arsenical injections, massage, and relaxation for the affected limbs.

Certainly judging from the fact that of 95 cases, 39 are alive after 10 years and 15 after 15 years, it appears that the disease runs a longer course, as pointed out by Dr. Russell Brain, than was previously taught. This may be due to the benefits of protein-shock therapy, but is more likely to be due to earlier diagnosis and particularly to the recognition of its manifold earlier manifestations, especially acute retrobulbar neuritis. The pathetic fact remains, however, that the sufferers ultimately develop a progressive paraplegia.

I am, Sir, yours faithfully,

Birmingham, Oct. 26th. S. SILVERMAN.

PNEUMOTHORAX IN A HEALTHY PERSON

To the Editor of THE LANCET

SIR,—The case recorded by Dr. A. Coleridge in your issue of Oct. 10th recalled to my mind a similar case in my own practice.

An engine driver who had previously enjoyed good health felt a severe piercing pain in the right side of his chest, with great difficulty of breathing. This was at 5 A.M. and two hours later he was admitted to Beni-Suef Government Hospital where pleurisy was diagnosed by the resident medical officer. I saw him at 8 A.M., when he was lying in great distress with cold sweating and rapid breathing. The right chest was motionless; breath sounds almost inaudible anteriorly, amphoric breathing posteriorly, more marked near the base. Bruit d'airain not present. Left lung harsh breathing, otherwise normal. Cardiac dullness slightly displaced to left. Temp. 37° C., pulse 86. The patient was given gr. ¼ of morphia. Next day X rays confirmed the diagnosis of right pneumothorax; the left lung was free from infiltration. The patient had never complained of cough or any other symptom suggestive of tuberculosis. He made an uneventful recovery. The right lung was completely inflated in two weeks and he resumed work after one month. At this time screening showed both lungs normal; a search for foreign bodies in the lungs proved negative.

My case differs from Dr. Coleridge's in the following particulars. The patient had been shot while driving a train in his right shoulder four months previously, when he was admitted to the same hospital and X rays proved the presence of small shots at the acromial end of the right clavicle. These were extracted aseptically by my colleague Dr. A. Shaffei, surgeon to the hospital, and the patient was discharged in 20 days.

I am, Sir, yours faithfully,
IBRAHIM ABDEL SAYED.
Beni-Suef, Egypt, Oct. 21st.

RADIOGRAPHY OF THE HAND IN CHRONIC RHEUMATIC DISEASES

To the Editor of THE LANCET

SIR,—It is gratifying to find that my book[1] describing a method of radiographic classification of chronic rheumatic arthritis from the changes found in the hand has stimulated Drs. Aldred-Brown and Stevens to carry out such an interesting and useful investigation on the subject. Although their paper in your issue of Oct. 17th is in the form of a critical survey of my book, it is of value inasmuch as it draws attention to several difficulties and controversial points that I anticipated, and these points are for the most part dealt with in my book.

1. Within certain limits it is not essential, but nevertheless desirable, for all radiologists to adopt an identical standard radiographic technique, but having chosen a standard they should keep to it. There are very few radiographers, let alone radiologists, who can be certain of turning out two consecutive radiograms of the hand identical in quality and density. Those who are uncertain of their technique will find a Benoist radiometer sufficiently accurate for standardisation purposes.

2. There should be no difficulty in separating rheumatoid arthritis and the local chronic infective arthritis clinically and radiographically. The former affects the whole body and must be considered to be a constitutional condition, while the latter is but a local arthritis similar to a tuberculous arthritis. In rheumatoid arthritis the whole skeleton takes part in the decalcification process, while decalcification is absent in chronic infective arthritis.

3. The evidence produced by Drs. Aldred-Brown and Stevens of marginal erosion of bones being an early manifestation of rheumatoid arthritis is unconvincing, and I predict that the radiographic examination of 154 normal hands will reduplicate many of the appearances shown in their reproductions. Bone architecture shows unlimited deviations from the normal. Familiarity with the normal is even more difficult to acquire than the pathological. From time to time efforts have been made to attach some diagnostic significance to various congenital variations, such as ridges of bones along the shafts of the phalanges—bony "tufts" of the terminal phalanges—demonstration of the shadow joint capsule, &c.

4. As a member of the B.M.A. committee appointed in 1933 I heard all the arguments on the subject of classification of rheumatoid arthritis. I am of the opinion that the subdivision into primary and secondary is unsound and illogical and can serve no useful purpose.

5. Knowing the difficulties of making an early clinical diagnosis in rheumatoid arthritis, I go so far as to say that no case should be placed in this group unless general decalcification of the bones is present; of course this must be associated with joint symptoms as it is well known that decalcification of bone occurs in other conditions.

6. It is asked, "Are radiograms of the hands of assistance to the clinician?" They certainly should be; but unfortunately this is dependent on correct interpretation; the significance placed upon the radiographic changes is the most difficult part of the examination. One point is however quite clear: we cannot take the clinical diagnosis to be infallibly correct, and until we can do so we must be content to include both the clinical and radiological classification in the notes, irrespective of whether they agree. The radiographic examination is the only direct means we have of recording pathology during life and as we become more proficient in radiographic interpretation so will the examination become more accurate and reliable.

I am, Sir, yours faithfully,
Brook-street, W., Oct. 27th. S. GILBERT SCOTT.

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[1] Radiological Atlas of Chronic Rheumatic Arthritis (The Hand), London, 1935.

TREATMENT OF VAGINAL DISCHARGE

To the Editor of THE LANCET

SIR,—In your issue of March 21st (p. 691) I called attention to the value of aluminium hydroxide in clearing up chronic vaginal discharge by rendering the secretion acid. The preparation I use was one commended by Prof. Gauss of Würzburg, and is known as Vagintus. But my imperfect mastery of English led me to use the word "granulated" for "colloidal." Vagintus is *colloidal* aluminium hydroxide which in contact with vaginal secretion has in nascent state the power of fixing alkali in high degree. The method has been described by Prof. W. Lahm, director of the laboratory of the Frauenklinik in Dresden (Münch. med. Woch., 1924, lxxi., 1751), and Prof. W. Schmitt, assistant at the Frauenklinik in Würzburg (Ibid., 1927, lxxiv., 22). The manufacturer is Max Elb in Dresden.

I am, Sir, yours faithfully,
London, Oct. 24th. R. KUHN.

SPONTANEOUS DISLOCATION OF THE JAW DURING ANÆSTHESIA

To the Editor of THE LANCET

SIR,—The safety and manifold advantages of Evipan administration are known widely, and the record of the following accident will in no way detract from the reputation of this useful drug.

A patient, aged 37, was given 3·5 c.cm. of evipan intravenously as a preliminary to the administration of gas, oxygen, and ether for a hysterectomy. The drug was administered slowly, the patient's eyes drooped, conversation faltered and failed, and she yawned luxuriously, the mouth remaining open. Attempts were made to close it, but this was found impossible. Examination confirmed a subluxation of the lower jaw which was reduced with complete ease and the anæsthesia and operation passed off without further incident. The patient gave no history of a previous dislocation and is full of enthusiasm for the gentle prick which paves the way for "anæsthesia without tears."

I am, Sir, yours faithfully,
S. CHARLES LEWSEN.
Devonshire-place, W., Oct. 26th.

OBITUARY

GEORGE GAVIN MORRICE, M.D. Camb., F.R.C.P. Lond.

THE death occurred on Oct. 22nd of Dr. George Morrice, consulting physician to the Dorset County Hospital and to the Weymouth Eye Infirmary; he had been in failing health for some time, his final illness lasting some two months.

Dr. Morrice was born at Longbridge, Wiltshire, the son of the late Canon Morrice of Salisbury, and was educated at Radley before proceeding to Trinity College, Cambridge. His clinical training was carried on in St. Bartholomew's Hospital, and he graduated as M.B. Camb. in 1887, three years later taking the diploma of M.R.C.P. Lond. He acted as clinical assistant at the Royal London Ophthalmic Hospital and also in the ophthalmic department of the Middlesex Hospital, and was then appointed to the staff of the Salisbury Infirmary. He came to Weymouth in 1898, and was soon elected to the staff of the Dorset County Hospital and the Weymouth Eye Infirmary, with which two institutions he remained connected to the end of his professional life. His work here was keen and strenuous and he earned the gratitude of the patients and the high regard of his colleagues. He was elected F.R.C.P. Lond. in 1915.

He was a learned man outside his strictly professional accomplishments, a member of the London Mathematical Society, and a fellow of the Cambridge Philosophical Society. Though an infrequent writer he made various contributions to these columns, to St. Bartholomew's Hospital Reports, and to the Proceedings of the Mathematical Society, while he was also the translator of Klein's Lectures on the Icosahedron. He was 77 years of age at the time of his death.

WILLIAM HERBERT MASON, M.R.C.S. Eng.

Dr. Mason died on Oct. 22nd at the Middlesex Hospital, aged 29. The only son of Mr. W. W. Mason of Abertillery, he was educated at Llandovery College and entered the Middlesex in 1925. For the past two and a half years he had held a responsible post in the Bland-Sutton institute of pathology at the hospital, and less than a month ago had contributed to this journal an article on acholuric jaundice. He was an able and promising pathologist, skilled and conscientious, and greatly liked by his colleagues, the students, and the staff. His career was hampered even in his student days by the illness that finally caused his death—recurrent hæmatemeses in association with Banti's syndrome. One of those who worked with him writes that "the morale and pluck that he exhibited in completing his qualification, in holding resident appointments, and in his onerous last position in the Bland-Sutton institute were astounding. Frequently he was disabled by a large hæmatemesis, yet as frequently he returned to work with never a trace of demoralisation nor a suggestion that he knew the inevitable end." Such courage is given to few.

REGINALD THORPE, M.R.C.S. Eng.

Dr. Reginald Thorpe, whose recent death is recorded, was at his consulting rooms in Harley-street, as usual, and returned home apparently in good health when the fatal seizure occurred. He qualified with the double diploma of the English Royal Colleges in 1891 and shortly afterwards went into general practice in a new district of south London, now forming part of Upper Tooting; he was the first occupant of a house in the developing district and his extensive practice grew as the residential district expanded. From the beginning of his professional career he was attracted by ophthalmology and had held posts as clinical assistant and out-patient officer at the Royal London Ophthalmic Hospital and as chief clinical assistant at the Royal Westminster Ophthalmic Hospital, and gradually his professional work came to centre round his specialty. He acted as ophthalmic assistant both at St. George's and Guy's Hospitals, and during the war was ophthalmic surgeon to the Grove Military Hospital, Tooting. Although holding no appointment as ophthalmologist in a teaching hospital, he became an acknowledged expert in his specialty, and was popular with a large circle of patients and colleagues to whom the tragic suddenness of his death came as a shock.

FRANCIS CREIGHTON FITZGERALD, L.R.C.S., L.R.C.P.I.

THE death of Dr. Francis Fitzgerald has removed from the ranks of the medical profession of Northern Ireland a prominent figure. He qualified in 1869 with the double diploma of the Irish Royal Colleges and practised for most of his life in the neighbourhood of Newtownbutler. He was medical officer to the town dispensary and M.O.H. of the district, and faced during a long period of professional life the extensive physical strain which these offices demanded of him. The area of his duties embraced certain islands of Lough Erne and the surrounding mountains, and in the discharge of his duties to a poor and straggling population he had to adopt many modes of transport, keeping, at the same time, a gig, sleigh, and boat, and using them as occasion demanded. One can well understand that he should be the first medical man in his district to use a motor-car. Apart from strenuous duties as a private practitioner and public officer, Dr. Fitzgerald was a prominent citizen; he was a magistrate in his native city, and had filled the post of high sheriff of the county.

THE LATE PROF. PASCHEN

Dr. Enrique Paschen, sometime director of the Impfanstalt at Hamburg, died on Oct. 22nd. His life-work was the study of small-pox and vaccinia, and his long tenure of the directorship of the vaccine station, from which he retired only a few years ago, gave him abundant opportunity and material on which to base those authoritative and beautifully illustrated descriptive studies of the pock diseases which adorn many a well-known compendium. We are indebted to Prof. J. C. G. Ledingham for what follows.

"Paschen's knowledge of small-pox and of vaccination processes in all their bearings was wide and deep and there were many who sought his gladly given advice and help. For thirty years, however, the elementary bodies had been his dominating interest and in the effort to commend them more favourably to outside opinion his leisure hours were devoted to further elaboration of the observational evidence in support of their ætiological importance. Following Aragao, he sought and found similar bodies in the vesicles of varicella (1919) and just three years ago in those of herpes zoster. Important findings resulting from his accomplished staining technique were his demonstrations of these bodies inside the epithelial cells of the experimentally infected cornea and skin, and I am happy to possess an album he presented to me some years ago containing beautifully executed photomicrographs of his successful efforts in this field. The essential links in the ætiological chain were, however, forged only some six years ago, when it became possible to work with pure suspensions of these minute bodies and to show that they alone represented the infective agents. These new methods and findings of British and American workers which established beyond question the ætiological importance of the elementary bodies were enthusiastically welcomed by Paschen, and provided him with a fresh incentive to investigate for himself the behaviour of the elementary bodies in various virus infections (vaccinia, ectromelia, Shope fibroma, &c.) when artificially propagated either in tissue culture or in the growing chick embryo.

"When he retired from his official post Paschen was given a laboratory at the Tropical Institute in which to work out his problems and there, in the company of his friend and collaborator, Prof. Nauck, he spent the busiest and perhaps happiest years of his life despite an increasingly troublesome cardiac disability to which he has at last succumbed. In 1932 it was a rare pleasure to him to visit London on the occasion of the centenary of the British Medical Association, and to take part in a virus discussion, when he communicated his work and views on the essential primary lung lesion in small-pox. As a vice-president of the recent International Congress of Microbiology he had hoped to visit London again, but his health forbade it and in his last letter to me only a few weeks ago he expressed the pleasure it had been to him to receive the sympathetic resolution of regret at his absence which was passed by the Virus Section. In the spring of this year the Paul Ehrlich gold medal was awarded to him for his scientific work.

"At 75 Paschen continued to be the eager and active searcher after truth and he has died with a paper in the press. He has also, I believe, passed away happy and thankful in the confidence that the contribution he was able to make to the problem of the elementary bodies and his persistent advocacy of their fundamental importance had received the full recognition and vindication of his fellows."

IODINE AND ENDEMIC GOITRE

REPORT TO THE MEDICAL RESEARCH COUNCIL

THE Medical Research Council this week publishes a report of an inquiry made under the direction of its advisory committee on iodine deficiency and thyroid disease. Its title is the Relationship of the Iodine Contents of Water, Milk, and Pasture to the Occurrence of Endemic Goitre in Two Districts of England, and its authors include Dr. Matthew Young, Miss M. G. Crabtree, and Miss E. M. Mason.[1] In previous surveys the methods employed for the determination of minute quantities of iodine, such as occur in drinking water and most foodstuffs, were not entirely above suspicion; in the present survey advantage has been taken of the more accurate analytical method recently reported by Mr. C. O. Harvey.

A goitre survey by the Board of Education in 1924 indicated a high incidence of goitre in Somerset and the lowest incidence in Suffolk, and these two districts were accordingly chosen for comparison. The efficiency of food distribution nowadays, however, renders such a survey difficult, and for this reason the investigation was restricted to the rural districts, where it appeared that the population subsisted for the most part on local sources of food. The goitre survey, carried out by Dr. Young, was confined to girls in the elementary schools between the ages of six and fourteen. The schools chosen were of such a size that it was unlikely that the milk to that village was supplied by more than two farmers. Only thyroids that were visibly enlarged were considered goitrous. In Somerset 120 rural schools were visited in the districts found in the 1924 survey to have the highest incidence. Of 3801 school-girls examined, 35·7 per cent. were found to have visible enlargement of the thyroid—in the age-group 6–8 years 25 per cent., 9–11 years 37 per cent., and 12–14 years 46·8 per cent., figures not very different from those obtained in 1924. From the 120 schools, 12 which had the highest incidence (54 per cent.) and in which the milk for the district was supplied by no more than two farmers were selected for the iodine survey. In Suffolk the iodine survey was carried out in twelve districts in which the incidence of goitre in the school-girls was found to be 3·7 per cent.

In the iodine survey, carried out by Miss Crabtree and Miss Mason, samples of milk were obtained from 22 farms in the Somerset districts and 21 in the Suffolk districts during the winter and summer, of pasture from the same farms during the summer, and of water from the household drinking supply of each farm during the winter. The analyses revealed that the only significant difference between the two districts lay in the iodine content of the waters, which averaged 2·9 γ per litre in Somerset and 8·2 γ per litre in Suffolk. The milk and pasture samples were almost identical for the two districts, averaging 0·83 γ per 100 c.cm. of milk and 28 γ per 100 g. of pasture in Somerset, and 0·76 γ per 100 c.cm. of milk and 25 γ per 100 g. of pasture in Suffolk. It is pointed out that in so far as the pastures are concerned, this would indicate that the Somerset soil must contain a sufficiency of available iodine in spite of the deficiency of this element in the water of the district, and that the identity of the iodine contents of the milk samples is doubtless a reflection of that of the pastures. It is concluded in the report that while the results demonstrate the recognised relationship of environmental deficiency of iodine to the incidence of goitre, the deficiency of iodine in Somerset is not so intense as to be solely responsible for the high incidence of goitre, and that the striking difference between the incidence of goitre in Somerset and Suffolk cannot be referred exclusively to the difference in the iodine contents of the respective waters. The authors think it difficult to escape the conclusion that some other factor is also involved.

ROYAL EAST SUSSEX HOSPITAL, HASTINGS.—Princess Alice, Countess of Athlone, on Oct. 23rd opened an operating theatre and a pathological library at this hospital, which was opened by her 13 years ago. The new extension has cost £10,000.

WARWICKSHIRE AND COVENTRY MENTAL HOSPITAL. The out-patient clinic for mental disorders, arranged by the Warwickshire and Coventry Mental Hospital at the Warneford Hospital, Leamington Spa, will in future be held every Monday at 2.30 P.M., instead of once a month.

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[1] Med. Research Counc., Spec. Rep. Ser. No. 207. London: H.M. Stationery Office. 1936. Pp. 20 6d.

MEDICAL NEWS

University of London

A meeting of the senate was held on Oct. 21st for the first time in the new buildings in Bloomsbury, with Mr. H. L. Eason, the vice-chancellor, in the chair. Dr. Charles Reid, lecturer in physiology at University College, London, was appointed to a readership in physiology tenable at the London Hospital medical college.

Dr. Reid, who is 44 years of age, was educated at Robert Gordon's College, Aberdeen, and at the University of Aberdeen, where he obtained the degrees of M.A. in 1914 and of B.Sc. in 1916. I[illegible] in medicine, and after holding resident [illegible] Royal Infirmary he served with the Roy[illegible] from 1917 until 1920, when he resumed work at Aberdeen, at first as assistant in physiology, and later as lecturer in experimental physiology at the University. Having taken the degrees of M.D. and D.Sc. he went to India in 1929 to become professor of physiology at the Prince of Wales Medical College at Patna—a post that he afterwards held in conjunction with a university readership in the natural sciences. After a year as a Commonwealth research fellow he took up his present appointment at University College in 1933. He has examined for the universities of Aberdeen, Patna, Lucknow, and Calcutta, and his work, including studies of diastase, hyperpiesis, intestinal movements, and muscular fatigue, has been published widely in medical, pathological, and physiological journals.

The Rogers prize was awarded to Dr. R. P. Kemp.

University of Glasgow

On Oct. 24th the following degrees were conferred :—

M.D.—R. S. Dewar and John Mackay.

M.B., Ch.B.—A. J. S. McFadzean, C. W. Maclay, L. J. Radin, G. J. Aitken, J. D. Aitchison, K. S. Alstad, W. F. Anderson, Elizabeth A. Marshall, Thomas Fletcher, John Harkness, W. K. Stewart, Alexander Slessor, Archibald McPhater, John McInroy, Gavin Boyd, Elizabeth M[illegible] G. L. Brown, and J. W. Ferguson [illegible] Highet, J. K. T. Cherry, I. M. Sc[illegible] Botwin, Hugh Doyle, B. C. Gallen, A[illegible] Janet F. Cormick, J. J. Jacobson, R[illegible] Goodkin, Agnes M. Stewart, Isador [illegible] A. S. Scott, T. C. Frame, D. T. Aitken, I. McK. Burns, Jack Joseph, A. T. Aylmer, Allan Walker, John Clark, J. K. Hunter, J. T. Boyd, David Dickie, J. H. McWilliam, Alexander Burns, W. G. Mactie, James Crawford, M. M. Garrey, F. R. Badenoch, J. L. Farmer, J. E. Jarrett, G. M. Arnott, and J. G. Denholm (with commendation); and J. M. Aitken, J. T. Aitken, James Angus, J. W. Ashforth, B. G. Bowles, John Clark, G. H. Collins, William Davidson, F. W. Dickson, C. G. M. Donaldson, J. C. Easson, J. B. Faison, William Fowler, T. M. Gibson, W. G. C. Gillies, Mairidh A[illegible]G. Graham, Munir Grais, F. P. Haldane, E[illegible] James Hamilton, Peter Kelly, F. C. Kenn[illegible] Lawson, Tom McEwan, A. M. Macfie, Jo[illegible] McHugh, Jean E. MacLachlan, H. C. [illegible]aclean, R. C. Macleod, G. B. Mair, T. M. Mansbridge, David Martyn, R. M. Munro, W. H. L. Patrick, Jessie M. Pope, J. T. W. Reid, David Rosenberg, G. T. Ross, Karl Sandbank, Margaret D. L. Service, Michael Silver, T. F. Stewart, W. C. Swanson, Jessie M. R. Tytler, and D. F. Wood.

The Brunton memorial prize and the West of Scotland R.A.M.C. memorial prize were awarded to A. J. S. McFadzean, and the Macewen medal in surgery to Archibald McPhater.

Royal College of Surgeons of Edinburgh

At a meeting of the College held on Oct. 20th with Mr. Henry Wade, president, in the chair, the following candidates who have passed the requisite examinations were admitted to the fellowship :—

A. S. Beer, M.B. Manch.; K. F. Caird, M.B. Edin.; C. W. Clark, M.D. Manitoba; A. J. de Villiers, L.R.C.P. Edin.; Kamel Girgis, M.B. Edin.; W. I. Gordon, M.B. Glasg.; I. H. Hewetson, M.B. Edin.; R. A. Hill, M.B. Lond.; R. St. J. Honner, M.B. Sydney; Richard Howarth, M.D. Edin.; C. H. Howat, M.B. Edi[illegible] Vienna, L.M.S.S.A. Lond.; Duncan [illegible] D. Meares, M.B. Sydney; N. H. [illegible]D. G. Myatt, M.D. Toronto; D. A. [illegible] C. R. McLaughlin, M.B. Edin.; V. [illegible]; Meyer Rassin, M.B. Edin.; C. V[illegible]; G. D. Saxton, M.D. Manitoba; I[illegible] Melb.; R. H. Smith, M.R.C.S. Eng.; [illegible] R.C.S. Eng.; G. L. Talwar, M.B. Lond.[illegible] M.B. Edin.

Institute of Medical Psychology

The dates for the series of lectures on child training to be held at the Institute's clinic in Malet-place, London, W.C., have been rearranged, and now Mrs. Susan Isaacs, D.Sc., will speak on Oct. 27th and Nov. 3rd; Dr. Maria Montessori on Nov. 10th and 17th; Miss Lillian de Lissa on Nov. 24th and Dec. 1st; and Dr. Charlotte Bühler on Dec. 8th and 15th.

Pharmaceutical Society of Great Britain

A meeting will be held in the house of this society (17, Bloomsbury-square, London, W.C.) on Tuesday, Nov. 10th, at 8.30 P.M., when Dr. Donald Hunter, physician to the London Hospital and member of the Pharmacopœia Commission, will speak on industrial toxicology to-day.

British College of Obstetricians and Gynæcologists

The quarterly meeting of the council was held on Oct. 24th, with Sir Ewen Maclean, the president, in the chair. Sir Mangaldas Mehta was elected to the membership, and the following were formally admitted to the membership :

D. A. Abernethy, Ida Birchall, J. R. Borg, W. J. Clancy, Robert Everett, F. H. H. Finlaison[illegible] Harbutt, A. M. [illegible] Lindsay, Muriel [illegible] G. D. Matthew, [illegible] Potter, M. P. R[illegible] E. ap I. Rosser, [illegible] Sugden, A. M. Sutherland[illegible] W. W. Wilson, *Gerald [illegible]

Rupert Eric Magarey (Australia) was admitted in absentia to the fellowship.

Nearly 250 persons, including every branch of the medical profession, were present at the sixth dinner of the College held at Claridge's, London, on Oct. 23rd, when the Minister of Health was the chief guest. Sir Ewen Maclean, who presided, paid a charming tribute to Dr. J. S. Fairbairn, his predecessor in the chair, when he described him as not easy to satisfy but always easy to please. Sir Kingsley Wood, who proposed The College, spoke of the energy and driving force which had tided it over the critical years when Fletcher Shaw's great idea was being worked out by Blair-Bell and others. He welcomed the College's efforts to raise the standards of obstetric practice, with special mention of the progress being made in India. He based the success of the health services, now and in the future, on close coöperation between the State and voluntary effort; he was, he said, studying the outline of the national maternity scheme submitted by the College and quoted with approval some words of Sir Ewen's—"the midwife may make or mar the success of any maternity service." An investigation by medical officers of health organised by Sir Comyns Berkeley was, he added, now nearly complete. Sir Ewen Maclean, responding to the toast, read congratulatory telegrams from Prof. Fletcher Shaw, at the moment in Philadelphia, and Prof. Marshall Allan in Melbourne, and spoke of an invitation to Khartoum to give advice about the curriculum there. He expressed the pleasure of the College at the Minister's desire to understand the difficulties of the medical profession. There were now, he said, more than 500 fellows and members of the College, 180 of them overseas, not including the 100 or more holders of the newly constituted diploma. Travelling scholarships of the value of £500 had been made possible by the Blair-Bell bequest, and the College had a small but very precious library given by the friends of the late Sir Henry Simson. The next thing was to get the College recognised by charter. Prof. R. W. Johnstone proposed The Guests, who were, he said, as history showed, at all events in Edinburgh, invited to exert a restraining influence on the members themselves. Lord Dawson, in response, spoke of the growing reputation of the College from year to year; [illegible]n the study of the problem of [illegible] which, he said, had to a large [illegible]. Can we not now, he added, all combine in pressing on the public the relative safety of childbirth? That being accepted, is the quality of race, he asked, equally secure? Are the people whose lives we preserve going to have a life that is worth while? Sir Farquhar Buzzard, who also responded, told his hearers something about Lord Nuffield's great gift for medical research. It was, he said, his hope that at Oxford inquiry would include the sociological and biological factors of disease. In a university city should be found the colour and atmosphere for the medical study of sociological problems.

Royal Waterloo Hospital

A lecture-demonstration on the treatment of sciatica will be given at this hospital by Dr. Gerald Slot on Thursday, Nov. 12th, at 10 A.M.

Kent and Canterbury Hospital

It is hoped to finish the new hospital building by June. The foundation-stone was laid on June 12th last year by the Duke of Kent.

Royal Northern Hospital Dining Club

The annual dinner of this club will be held at the Café Royal, Regent-street, London, W., on Friday, Nov. 27th, at 8 P.M. for 8.30 P.M. Mr. R. E. Norrish will be in the chair, and Mr. Gwynne Williams, consulting surgeon to the hospital, will be the guest of the evening. The hon. secretary is Dr. H. A. Cowan, 32, Fitzroy-square, W.1.

Medical Peace Campaign

A meeting of medical practitioners and scientists to consider the possibility of aerial warfare and our means of defence against it will be held in the Hastings Hall, B.M.A. House, on Wednesday, Nov. 25th, at 8.30 P.M. The chair will be taken by Dr. E. P. Poulton, and speakers will include Dr. Stella Churchill, Dr. Robert Edbrooke, Mr. R. Mackinnon Wood, M.A., and Mr. L. A. Rawlings, Ph.D. It is hoped that there will be a full discussion of the whole subject, and particularly of the attitude which the medical profession might reasonably adopt towards it. Information about the campaign may be had from Dr. Cecile Booysen, medical secretary of the International Medical Association for the Prevention of War (British Section), 12, Kent-terrace, London, N.W.1.

Surgical Instrument Manufacturers' Association

The annual dinner of this association was held at the Holborn Restaurant, London, on Oct. 16th, with Mr. H. Guy Drew presiding. Mr. N. St. J. G. D. Buxton, in proposing the toast of The Association, suggested that the most important part of its work was in recruitment. I greatly admire, he said, the training which your recruits are to go through in order to become surgical technicians, and I admire still more the ethical code which is now attached to your association. That is a marvellous thing and will obviously raise the standard of all your craftsmen. He referred to research work in metals. If the appliance maker knows the strength of steel and what strain it will take, that will be of infinite use to the surgeon. There should be scope for research too in connexion with sterilisation. How close can be the relation between the maker of instruments and the surgeon? That is the first question that arises in the education of your younger members. They must have handled many kinds of forceps, but have they ever learnt how to cut a bone? They could learn something by doing this if only in the cadaver. Mr. Drew, who responded to the toast, said that in a few years' time nobody would dream of sending a patient to an appliance fitter unless he felt that the staff of that firm had been closely acquainted with the anatomy of the human body. The craftsman, he said, is a product of the learner and apprenticeship system, and in the history of mankind there has never been such wonderful work as is turned out in our factories to-day, and it is all handcraft. The prolongation of life rests in many cases to-day in the hands of the surgeon, and if the surgeon has not behind him the skilful craftsman who can supply him with exactly what he wants at the moment he wants it, surgery would not be making the almost kaleidoscopic changes it makes to-day. But, he said, we are not content with our present craftsmanship; we hope to render it still more efficient with the aid of the Institute of British Surgical Technicians. The toast of The Guests and the Ladies, proposed by Dr. A. N. Gardner, was responded to by Lt.-Col. W. Parkes, Sir Frederick Hobday, Mr. Cecil P. G. Wakeley, and Mr. R. Say. Mr. Wakeley remarked that surgeons looked forward to the various exhibitions of instruments as occasions on which they could find something of real use. Mr. Say, speaking for the Hospital Saving Association, said that his organisation was anxious that only those who were qualified to supply efficient appliances should be allowed to enter the field. It would, he hoped, be the aim and object of the new institute to restrain the quack advertiser.

Liddle Triennial Prize

It is announced by the dean of the London Hospital medical college that this prize has been awarded to Dr. Clifford Wilson for an essay on the relation of pregnancy to diseases of the kidney.

British Cottage Hospital, Algiers

The committee of this institution, which has been in existence for over forty years, is appealing for financial assistance. The hospital revenues do not cover cost of maintenance.

The Study of Rheumatism

The next quarterly meeting of the recently constituted committee for the Study and Investigation of Rheumatism at the Red Cross Clinic, Peto-place, London, N.W., will be held at the clinic on Tuesday, Nov. 3rd, at 5.30 P.M., when Dr. W. S. C. Copeman will read a paper on gold therapy in rheumatic disorders. Medical men interested in rheumatism are invited to attend this and other meetings of the committee.

The Guild of St. Luke

This guild held its annual general chapter on Oct. 22nd. The chief business transacted was the voting of grants to the various missionary and philanthropic societies which the guild supports. The Universities Mission to Central Africa received a special donation of £100 as well as the usual annual grant of £50. The Royal Medical Benevolent Fund, the London Diocesan Council for Preventive and Rescue Work and other bodies received smaller grants. The meeting also considered the possibility of further grants later in the year to other church societies engaged in work of particular interest to the medical profession.

The guild consists of Church of England practitioners and students who desire to promote and defend the faith especially in their profession. It was founded in 1864 as an outcome of the Oxford movement. Those interested may obtain information from the secretary at 164, Ducane-road, London, W.12.

King's College Hospital

Lord Hambleden presided at a meeting in the medical school of this hospital on Oct. 27th, when Sir StClair Thomson spoke on the development of the treatment of affections of the ear, nose, and throat which to-day form one department in the work of King's College Hospital. He compared its cramped beginnings in a "cubby-hole" where 865 patients were treated in 1896 with its present record which shows that 3012 patients were treated last year in the out-patient department. The increase in the work, the long waiting-list, and the absence of any satisfactory sterilising arrangements have now necessitated the extension of the theatre at an expenditure of £1350, and it has been found necessary to throw out the building over a cloister in order to gain additional space. Besides providing additional accommodation in the theatre the alterations include the provision of a room for the surgeons. At the close of the address these new extensions were declared open.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, Nov. 3rd.

Orthopædics. 5.30 P.M. (Cases at 4.30 P.M.) Mr. R. Brooke: 1. Cases Illustrating the Effect of Removal of the Patella for Fractures of that Bone. Mr. H. J. Burrows: 2. Adaptation of Brockman's Procedure for Madelung's Deformity to Talipes Varus Resulting from Defective Tibial Growth.

Pathology. 8 P.M. (University College Hospital, Gower-street, W.C.), J. H. Paterson: Two Cases of Reticulo-endotheliosis. Chronic Interstitial Pneumonia, Periarteritis Nodosa. S. A. Ashmore, G. R. Cameron, A. W. McKenny Hughes, and J. C. Thomas: Toxicity of Chlorine Derivatives of Benzene. J. C. Thomas: A Modified Viewing Apparatus for Precipitin Tests. C. H. Gray: Estimation of Ketone Bodies in the Blood. J. H. Bayley: New Methods for Staining the

Islets of Langerhans. J. L. Jona: The Renal Pelvis. C. C. Okell and S. D. Elliott: Streptococcal Cross-infections in Oto-rhinological Wards. S. D. Elliott: Use of Saponin in Culture Media. Miss A. M. Lewis: Growth of Yeasts and Fungi on Agar-covered Slides (Rivalier). A. Neuberger: Zeiss Photometer. C. C. Lucas: Micro-determination of Lead. M. Maizels and M. R. Thomas: Hydrogen Electrode.

9.30 P.M., Mr. A. W. McKenny Hughes (British Museum, Natural History): The Red Army (illustrated by film).

WEDNESDAY.

History of Medicine. 5 P.M. Mr. L. W. G. Malcolm: The History of Medical Museum Exhibits: a Bibliographical Study.

Surgery. 8.30 P.M. Prof. G. Grey Turner: The Debatable Land in the Management of Cancer. (Presidential Address.)

FRIDAY.

Otology. 10.30 A.M. (Cases at 9.30 A.M.) Dr. Douglas Guthrie: The Renaissance of Otology. (Presidential Address.) Dr. Rh. Blegvad (Copenhagen): Modern Views on Vertigo.

Laryngology. 4.40 P.M. Dr. A. Hautant (Paris): Formes Anormales de la Tuberculose Laryngée Simulant le Cancer du Larynx. Dr. Rh. Blegvad, Dr. L. S. T. Burrell, Sir StClair Thomson, Mr. F. C. Ormerod, and Mr. J. D. McLaggan: The Problem of Early Laryngeal Tuberculosis.

LONDON JEWISH HOSPITAL MEDICAL SOCIETY, Stepney Green, E.

THURSDAY, Nov. 12th.—3.30 P.M., clinical cases. 4.45 P.M., Dr. J. Leon Jona: Obscure Kidney Pain: Physiological Investigation and Indications for Treatment.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

FRIDAY, Nov. 6th.—8.45 P.M. (West London Hospital), Dr. Hugh Gordon and Dr. R. D. Moyle: Diseases of the Skin.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

UNIVERSITY OF LONDON.

THURSDAY, Nov. 5th.—5 P.M. (1, Wimpole-street, W.), Mr. Walter Howarth: Some Tumours and Ulcers of the Palate and Fauces. (Semon Lecture.)

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.

TUESDAY, Nov. 3rd.—5 P.M., Dr. Edward Mapother: The Integration of Neurology and Psychiatry. (Bradshaw Lecture.)

THURSDAY.—5 P.M., Dr. J. D. Rolleston: The History of the Acute Exanthemata. (First FitzPatrick Lecture.)

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields.

MONDAY, Nov. 2nd.—5 P.M., Dr. L. W. Proger: Intestinal Diseases.

FRIDAY.—5 P.M., Dr. A. J. E. Cave: Anatomy of Abdominal Herniæ.

CHADWICK LECTURE.

THURSDAY, Nov. 5th.—8.15 P.M. (Royal Society of Arts, John-street, Adelphi), Mr. Robert Hyde: Industry's Contribution to Public Health—Firms' Voluntary Medical Services.

INSTITUTE OF HYGIENE, 28, Portland-place, W.

WEDNESDAY, Nov. 4th.—3.30 P.M., Dr. J. B. Mennell: The Prevention of Rheumatic Diseases.

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane-road, W.

MONDAY, Nov. 2nd.—2.15 P.M., Dr. Duncan White: Radiological Demonstration.

TUESDAY.—2 P.M., Prof. E. H. Kettle, F.R.S.: Pathological Demonstration. 4.30 P.M., Dr. H. Yellowlees: Psychological Medicine.

WEDNESDAY.—Noon, clinical and pathological conference (medical). 2.30 P.M., clinical and pathological conference (surgical). 4.30 P.M., Prof. S. P. Bedson, F.R.S.: Virus Diseases.

THURSDAY.—2.15 P.M., operative obstetrics. 3.30 P.M., Mr. Aleck Bourne: Abortion.

FRIDAY.—2.15 P.M., department of gynæcology, pathological demonstration. 2.30 P.M., Mr. G. Jefferson: Surgery of Nervous System.

Daily, 10 A.M. to 4 P.M., medical clinics, surgical clinics or operations, obstetrical and gynæcological clinics or operations, and refresher course for general practitioners.

INSTITUTE OF MEDICAL PSYCHOLOGY, Malet-place, W.C.

MONDAY, Nov. 2nd.—3 P.M., Prof. Millais Culpin: Hysteria. 4.30 P.M., Dr. C. M. Bevan-Brown: Individual Psychology (Adler). 5.45 P.M., Dr. E. B. Strauss: Case Histories—Obsessional Compulsion.

THURSDAY.—3 P.M., Prof. Millais Culpin: Obsessional States. 4.30 P.M., Dr. Mary Luff: The Psychology of the Psychoses. 5.45 P.M., Dr. E. B. Strauss: Case Histories—Sexual Perversion.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.

MONDAY, Nov. 2nd.—10 A.M., skin clinic. 11 A.M., surgical
wards. 2 P.M.,
wards, medica
4.15 P.M., Mr.

TUESDAY.—10 A.M
wards. 2 P.M.,
clinics. 4.15 P.M.,
culosis in the Adolescent.

WEDNESDAY.—10 A.M., children's ward and clinic. 11 A.M., medical wards. 2 P.M., gynæcological operations, medical, surgical, and eye clinics.

THURSDAY.—10 A.M., neurological and gynæcological clinics. Noon, fracture clinic. 2 P.M., operations, medical, surgical, genito-urinary, and eye clinics. 4.15 P.M., venereal diseases.

FRIDAY.—10 A.M., medical wards, skin clinic. Noon, lecture on treatment. 2 P.M., operations, medical, surgical, and throat clinics. 4.15 P.M., Mr. Vlasto: Pain in the Ear.

SATURDAY.—10 A.M., children's and surgical clinics. 11 A.M. medical wards.

The lectures at 4.15 P.M. are open to all medical practitioners without fee.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Nov. 2nd, to SUNDAY, Nov. 8th.—ST. JOHN'S HOSPITAL, Leicester-square, W.
dermatology.—ST. PETER'S
street, W.C., all-day course
WATERLOO HOSPITAL, Waterl
course in medicine, surgery, and gynæcology.—ST. JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE, Ranelagh-road, S.W., Sat. and Sun., course in physical medicine.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

WEDNESDAY, Nov. 4th.—2 P.M., Dr. Wilfred Pearson: Weaning and Diet from Nine Months to Two Years of Age. 3 P.M., Dr. G. H. Newns: The Hæmorrhagic State and Other Types of Spontaneous Bleeding in Infancy.

Out-patient clinics daily at 10 A.M. and ward visits at 2 P.M.

LONDON SCHOOL OF DERMATOLOGY, 5, Lisle-street, W.C.

TUESDAY, Nov. 3rd.—5 P.M., Dr. G. B. M. Heggs: Skin Affections of the Hands and Feet.

THURSDAY.—5 P.M., Dr. W. J. O'Donovan: Dermatological Neuroses. (Chesterfield Lectures.)

NATIONAL HOSPITAL, Queen-square, W.C.

MONDAY, Nov. 2nd.—3.30 P.M., Mr. Leslie Paton: Papillœdema.

TUESDAY.—3.30 P.M., Mr. Harvey Jackson: Some Aids to the Diagnosis of Tumours of the Nervous System.

WEDNESDAY.—3.30 P.M., Dr. Kinnier Wilson: Clinical Demonstration.

THURSDAY.—3.30 P.M., Dr. Gordon Holmes, F.R.S.: The Sensory System.

FRIDAY.—3.30 P.M., Dr. Bernard Hart: Psychopathology (V.).

Out-patient clinic daily at 2 P.M.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, Nov. 6th.—4 P.M., Mr. W. G. Scott-Brown: The Common Cold.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.

WEDNESDAY, Nov. 4th.—4 P.M., Dr. Michael Kremer: Some Recent Therapeutic Measures.

ST. PAUL'S HOSPITAL, Endell-street, W.C.

WEDNESDAY, Nov. 4th.—4.30 P.M., Mr. H. P. Winsbury-White: Stone in the Urinary Tract.

ST. MARY'S HOSPITAL.

THURSDAY, Nov. 5th.—5 P.M., Dr. G. O. Barber: Equipment (General Practice V.).

ST. JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE, Ranelagh-road, S.W.

FRIDAY, Nov. 6th.—4.30 P.M., Dr. Philip Ellman: The Classification and Clinical Types of Rheumatic Joint Diseases.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Hospital, Balham.

WEDNESDAY, Nov. 4th.—4 P.M., Dr. Norman Haire: Birth Control Methods (II.).

MANCHESTER ROYAL INFIRMARY.

TUESDAY, Nov. 3rd.—4.15 P.M., Dr. Norman Kletz: Some Medical Aspects of Affections of the *Gall-bladder.*

FRIDAY.—4.15 P.M., Dr. J. Wharton: Demonstration of Ophthalmic Cases.

MANCHESTER HOSPITAL FOR CONSUMPTION.

WEDNESDAY, Nov. 4th.—4.30 P.M., Dr. H. R. Clarke: Bronchiectasis.

ANCOATS HOSPITAL, Manchester.

THURSDAY, Nov. 5th.—4.15 P.M., Mr. McEvedy: Toxic Goitre.

LEEDS GENERAL INFIRMARY.

TUESDAY, Nov. 3rd.—3.30 P.M., Dr. MacAdam: Conditions Simulating Thyrotoxicosis.

LEEDS PUBLIC DISPENSARY.

WEDNESDAY, Nov. 4th.—4 P.M., Mr. L. N. Pyrah: The Diagnosis and Treatment of the Common Vascular Diseases of the Upper and Lower Limbs.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.

WEDNESDAY, Nov. 4th.—4.15 P.M. (Western Infirmary), Prof. Archibald Young: Sympathectomy and the Relief of Pain.

Appointments

BROCK, R. C., M.S. Lond., F.R.C.S. Eng., has been appointed Visiting Surgeon to Queen Mary's Hospital, Roehampton.

CRUICKSHANK, ALEXANDER, M.B. Aberd., F.R.C.S. Eng., Hon. Surgeon to Out-patients to the Royal Hospital, Richmond.

MURRAY, W. N., M.B. Aberd., Clinical Assistant to the Ophthalmic Department of the Royal Infirmary, Sheffield.

PAYNE, D. D., M.D. Lond., D.P.H., Assistant Medical Officer of Health and Assistant School Medical Officer for Croydon.

NOTES, COMMENTS, AND ABSTRACTS

A YEAR AT THE MINISTRY OF HEALTH

THE seventeenth annual report[1] of the Ministry of Health, the first to be drawn up by Sir George Chrystal, differs from its predecessors in presentation and arrangement. The strict division of the matter into four parts with headed chapters makes the report easier to follow, and the detailed index at the end is welcome. The report is largely about those aspects of the Ministry's work which, although related to health, are not within the doctor's usual province; the annual report of the chief medical officer has not appeared yet. The secretary's report gives accounts, for instance, of the progress made in slum clearance and in housing, of rating and the finance of local authorities, town planning, the Ribbon Development Act, and municipal buildings and aerodromes. The chapters dealing with national health insurance are mainly concerned with its routine working. They have not even the emphasis on numbers which is to be found in other sections: as in the chapter on town and country planning where the North Riding of Yorkshire with its million acres heads the list, or in that on the contributory pensions scheme for widows, orphans, and old age which has reached a record value. The most conspicuous and satisfactory figures have already received publicity in the press—namely, those for infant mortality, deaths from tuberculosis, and maternal mortality. The infant mortality, 57 deaths per 1000 births, was the lowest on record and follows a steady reduction in the previous four years. A warning is given, however, that next year's figures may show some set-back because of the bad weather and the prevalence of infectious diseases during the first quarter of the year. The number of deaths from all forms of tuberculosis was the lowest recorded. The maternal mortality-rate of 3·93 per 1000 births was the lowest since 1924, the deaths from puerperal sepsis being much reduced and those from other causes slightly increased. The treatment centres for venereal diseases report a steady reduction in the numbers of new infected cases attending during the year, and it is interesting to note that the number of new cases found not to be infected has risen by more than 3000 in two years. The new cases of congenital syphilis dealt with were in aggregate more although there were fewer under one year, the extra number being made up by the detection of the disease in those over fifteen. During the year there was one case of plague and only one of small-pox. The chapter on food, after mentioning the reconstitution of the Advisory Committee on Nutrition and also the draft Milk (Special Designations) Order, describes some of the results of the analysis of foods and drugs. These show no conspicuous change from those of other years.

THE "PEX" INDICATOR

DOMESTIC measures to make raw milk safer have never been very satisfactory. To bring the milk to the boil results sometimes in the milk boiling over, while the taste of boiled milk is frequently disliked by children. Pasteurisation on a domestic scale requires a mercury thermometer and some skill in its use which is not possessed by every housewife. Anything which simplified domestic pasteurisation would be a boon. The "Pex" indicator is a glass tube fixed at one end to a handle, while the other end contains about an inch of a chemical substance which is a brilliant red. The makers of this indicator state that the red colour changes to nearly black at 160° F. and that if the heat is removed the milk remains at that temperature for a sufficient time to give the same results as are obtained by standard pasteurisation in which temperature is maintained at 145° F. for 30 minutes. We have tested the instrument and found that the colour change commenced at 157° F., but was not complete until 160° F. was passed, and even if the flame were then immediately removed the temperature was maintained long enough to ensure pasteurisation. The test suggests that, used as indicated in the directions, the milk is rendered safe for consumption to the same extent as standard pasteurisation renders milk safe. The indicator is easy to use. The only fault to find with it is that the milk gets a little more heat treatment than is absolutely necessary, but this is a fault on the right side. It should be of value for the home pasteurisation of milk when a pasteurised supply is not available. Its use is also advocated in cream making and fruit bottling. The price is 2*s.* 6*d.* post paid from Pexogen Co. (F. R. L. Wilson), Middlebriars, Godalming.

DOCTOR FRIENDS OF FRENCH WINE

A CONGRESS was recently held at Dijon whose members thus style themselves, and whose object is to make a wide inquiry in different countries as to the therapeutic value of wine. The director of the Office International du Vin (1, Place du Palais-Bourbon, Paris, VII) has invited THE LANCET to become the medium for British views in furtherance of the investigation which represents, he says, "a genuine effort on the part of eleven hundred French medical men to discover the experience of their colleagues abroad." The following questionnaire is appended:—

1. Do you consider wine as a dietary or alimentary beverage, indispensable, useful, or harmful?
2. Is wine prescribed by you ever, or always, or occasionally, or forbidden or tolerated?
3. Do you necessarily associate in your mind wine-drinking with alcoholism? If so, why?
4. Do you think that in your district, for social, economic or hygienic reasons, a medical propaganda in favour of wine would be useful or harmful?
5. Do you yourself abstain from all alcoholic drinks, including wine?
6. Have you any question to put to the Association of Medical Friends of Wine on this subject, or have you an idea to expound? If so, what? Either will be welcomed.

Signature ....

Address ....

The Office International du Vin would be grateful if any of our readers will reply direct to the Office International du Vin, and assures them that their coöperation will be enormously appreciated.

A MEDICAL DIRECTORY FOR AUSTRALIA

IN response to a widespread desire on the part of the medical profession in Australia, Mr. Errol G. Knox, author of "Who's Who in Australia," brought out in 1935 a record of every traceable registered medical practitioner in Australia and in the Commonwealth territories in the Pacific. It does not cover New Zealand. The directory gives the name, qualification, appointments, decorations, address and telephone number, so far as these data were available, with a selection from any medical and scientific publications. The directory is in fact closely modelled on the lines of Churchill's Medical Directory. Following the alphabetical list is a gazetteer containing the names of those in private practice in each city, suburb, and town in Australia, arranged by States; a directory of public medical services and of Australian medical boards and faculties of medicine; and a list of the Fellows of the Royal Australasian College of Surgeons. The second annual issue (for 1936–37) which has just reached us contains many fresh entries, particularly of Australian graduates now practising abroad. It also includes the names of the resident medical officers at teaching hospitals. The book, which is well bound and of convenient format and costs one guinea, may be had from Mr. Knox at Warwick Building, Hamilton-street, Sydney.

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[1] H.M. Stationery Office. Cmd. 5287. 5s.

A LITTLE KNOWN FUND

For the last ten years money has been available to help women earning their own living to get really effective treatment for early pulmonary tuberculosis. The patient may choose for the purpose any locality in the British Isles or in Switzerland provided there is a sanatorium there approved by her medical attendant and by the trustees of the fund. In the ordinary way two years is the limit for sanatorium treatment, but it may be extended in special circumstances. So far as it is in her power to do so the patient herself must contribute to the cost of her treatment. At the time of year when sanatorium treatment is becoming specially desirable we take the opportunity of calling the attention of those who have such patients under their care to the Margaret de Sousa Deiro Fund, addressing the secretaries of the fund at 10 and 12, Bishopsgate, London, E.C.2.

Vacancies

For further information refer to the advertisement columns

Aberdeen Royal Mental Hospital.—Jun. Asst. Phys., £300.

Army Dental Corps.—12 Commissions.

Bath, Royal United Hospital.—Res. O., £150.

Battersea General Hospital, S.W.—Hon. Medical Staff.

Belgrave Hospital for Children, Clapham-road, S.W.—H.P., at rate of £100.

Bethnal Green Metropolitan Borough.—Asst. M.O., £600.

Birmingham, Canwell Hall Babies' Hospital.—Res. M.O., at rate of £250.

Brighton, Royal Alexandra Hospital for Sick Children.—H.S., £120.

Bristol Royal Infirmary.—Sen. Asst. Also Asst. to Cancer Research Dept., £100 and £300 respectively.

Burton-on-Trent General Infirmary.—H.P. and Cas. O., £150.

Chesterfield and North Derbyshire Royal Hospital.—Hon. Surgeon.

Colonial Medical Service.—M.O.'s.

Coventry and Warwickshire Hospital.—Res. H.S. Also Res. H.S. to Aural and Ophth. Dept., each at rate of £125.

Dartford, City of [illegible] Jun. Asst. M.O., £350.

Dingwall, Lewis [illegible] *Diseases Hospital.*—Res. M.O., [illegible]

Ealing, King Edward Memorial Hospital.—Jun. Res. M.O., at rate of £150.

Eastbourne, Royal Eye Hospital, Pevensey-road.—H.S., £100.

Eastcote, Middlesex, St. Vincent's Orthopædic Hospital.—Registrar, £150.

Edmonton, North Middlesex County Hospital.—Jun. Res. Asst. M.O., at rate of £250.

Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—Hon. Ophth. Surgeon.

Essex County Council.—Ophthalmic S., £750.

Gordon Hospital for Rectal Diseases, Vauxhall Bridge-road, S.W.—Res. H.S., at rate of £150.

Guildford, Royal Surrey County Hospital.—H.S., £150.

Guy's Hospital, S.E.—Alfred Fripp Memorial Fellowship, &c., £300.

Hastings, Royal East Sussex Hospital.—Sen. H.S., at rate of £200.

Hertford County Hospital.—Hon. Ophth. Surgeon. Also H.S., at rate of £180.

Heston and Isleworth Borough.—Sen. Asst. M.O.H. and School M.O., £600.

Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—Asst. Res. M.O., at rate of £150.

Hospital for Epilepsy and Paralysis, Maida Vale, W.—Hon. Ophth. Surgeon, also two Med. Regs., each £100.

Hospital for Sick Children, Great Ormond-street, W.C.—Surgical Reg., £200; also Res. H.P. and Res. H.S., each at rate of £100. Also Res. Anæsthetist Reg., at rate of £150.

Hove General Hospital.—Hon. Surgeon. Also Res. M.O., at rate of £200.

Ilford, King George Hospital.—H.S., at rate of £100.

Kent Education Committee.—M.O. (Ophthalmic), £700.

Larbert, Stirling District Mental Hospital.—Jun. Asst. M.O., £300.

Lincolnshire (Kesteven) County Council.—Asst. County M.O.H., £500.

London County Council.—Asst. M.O.'s, Grade 1, each £350. H.P.'s, each at rate of £120.

London Homœopathic Hospital, Great Ormond-street, W.C.—Surgeon in Charge of Orthopædic and Mechano Therapy Dept.

London Hospital, E.—Med. First Asst. and Reg., £300.

London Jewish Hospital, Stepney Green, E.—Out-patient Asst., £125. Also Res. M.O. and H.P., at rate of £150. Also H.S. and Cas. O., at rate of £100.

London Lock Hospital, 283, *Harrow-road, W.*—Res. M.O. to Male Depts., at rate of £175.

Loughborough Borough.—M.O.H. and School M.O., £800.

Manchester, Park Hospital, Davyhulme.—Res. Obstet. O., £400.

Manchester Royal Eye Hospital.—Jun. H.S., £120.

Middlesex Hospital, W.—First Officer, £650; Second Officer, £625; two Jun. M.O.'s, each £300, for Radiotherapy Dept. Also Physician.

Mid[illegible] *School, W.*—Asst. Physicist, [illegible], and one Obstet. and Gynæc. [illegible]

Nati [illegible] *of the Nervous System, Queen-* [illegible] Surgeon.

Paddington Green Children's Hospital, W.—Hon. Surgeon to Ear, Nose, and Throat Dept.

Plymouth, Prince of Wales's Hospital. [illegible] Surg. O. Also H.S., at rate of £2[illegible]

Queen Charlotte's Maternity Hospital, [illegible] Res. Anæsthetist, at rate of £100. Res. Anæsthetist and District Res. M.O., at rate of £90. Also Asst. Res. M.O., at rate of £80.

Queen Mary's Hospital for the East End, E.—Hon. Asst. Physician for Children's Dept. Also Obstet. H.S., £150.

Reading, Royal Berkshire Hospital.—Cas O., at rate of £125.

Richmond, Surrey, Royal Hospital.—Jun. H.S., at rate of £100.

Royal Air Force Medical Service.—Commissions.

Royal Cancer Hospital, Fulham-road, S.W.—H.S., at rate of £100.

Royal Chest Hospital, City-road, E.C.—Res. M.O. and H.P., at rate of £150 and £100 respectively.

Royal Free Hospital, &c., W.C.—Obstetric and Gynæcology Unit, Sen. Asst. (part-time), £350; second Asst., £500; thrid Asst., £270. Also Hon. Asst. Dental Surgeon.

Royal London Ophthalmic Hospital, City-road, E.C.—Asst. M.O. to Physico-therapeutic Dept., £150.

Royal Naval Medical Service.—M.O.'s.

Royal Northern Hospital, Holloway, N.—H.S. and H.P., each at rate of £70

St. John's Hospital, Lewisham, S.E.—Res. Surg. O., £200.

St. Mary's Hospital for Women and Children, Plaistow, E.—Res. H.S., at rate of £155.

Salvation Army Mothers' Hospital, Lower Clapton-road, E.—Sen. Res. M.O., £150; also Jun. Res. M.O., at rate of £80.

Sheffield Children's Hospital.—H.S., at rate of £100.

Sheffield, Jessop Hospital for Women.—Two H.S.'s, each at rate of £100.

Sheffield, Jessop Hospital for Women, Firth Auxiliary, Norton.—Res. M.O., at rate of £150.

Somerset County Council.—Asst. M.O. for Sandhill Park Certified Institution, &c., £500.

South Mimms, Clare Hall County Sanatorium.—Res. Asst. M.O., £400.

Stockport County Borough.—Asst. M.O.H., £500.

Surrey County Council.—Deputy County M.O.H., £1250.

West End Hospital for Nervous Diseases, 73, *Welbeck-street, W.*—Hon. Gynæcologist.

Westminster Hospital, Broad Sanctuary, S.W.—Three Surg. Regs., each £250.

West Riding of Yorkshire, Menston Mental Hospital, near Leeds.—Asst. M.O., £350.

West Riding of Yorkshire, Wadsley Mental Hospital, near Sheffield.—Asst. M.O., £350.

Willesden General Hospital, Harlesden-road, N.W.—Hon. Clin. Assts. to Medical Dept.

Wolverhampton and Midland Counties Eye Infirmary.—H.S., £150.

The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Allendale (Northumberland) and Morriston Glamorgan).

Births, Marriages, and Deaths

BIRTHS

Cummins.—On Oct. 2nd, at Shillong, Assam, the wife of Capt. P. H. Cummins, I.M.S., of a son.

Dalrymple Smith.—On Oct. 18th, the wife of Mr. A. Dalrymple Smith, F.R.C.S., of Richmond, Yorkshire, of a son.

MARRIAGES

Holmes—McInerney.—On Sept. 14th, at Bombay, Major F. Holmes, R.A.M.C., to Aileen Mary, daughter of the late Colonel T. M. McInerney, C.M.G., V.D., and Mrs. McInerney, of Melbourne.

Shortt—Collins.—On Oct. 17th, at Cheltenham, Cyril de Vere Shortt, M.D., to Ethna Eirene, daughter of Dr. J. Rupert Collins, of Cheltenham.

DEATHS

Blair.—On Oct. 19th, at Thrupp, Stroud, Glos, James Andrew Blair, M.D. Edin., D.Sc.

Bruce.—On Oct. 16th, George Bruce, M.B. Aberd., of Cults, Aberdeen, and late of Melbourne, Derbyshire, aged 66.

Chapple.—On Oct. 19th, in London, W. A. Chapple, M.D. N.Z., D.P.H., Major, R.A.M.C. (retired), sometime M.P. for Stirlingshire and Dumfriesshire, aged 72.

Hern.—On Oct. 21st, John Hern, M.D. Edin., F.R.C.S.E., of South Nutfield, Surrey, late of Darlington, in his 82nd year.

Mason.—On Oct. 22nd, at the Middlesex Hospital, William Herbert Mason, M.R.C.S., only son of Mr. W. W. Mason, of Abertillery, aged 29.

Morrice.—On Oct. 22nd, at Weymouth, George Gavin Morrice, M.D. Camb., F.R.C.P. Lond., aged 77.

Robson.—On Oct. 20th, at Sittingbourne, Neil Robson, M.B. Glasg., F.R.C.S. Edin.

Souper.—On Oct. 21st, at Aberdeen, Hugh Ross Souper, M.D. Aberd., aged 49.

Woodyatt.—On Oct. 20th, 1936, at Dormers, Fitzroy Park, N.6, William Jeffery Woodyatt, M.B., Ch.B. Manch., late Medical Superintendent, St. Peter's Hospital, E.1.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths

ADDRESSES AND ORIGINAL ARTICLES

THE AGE FACTOR IN LOBAR PNEUMONIA

BY ROBERT COOPE, M.D., B.Sc. Liverp., M.R.C.P. Lond.
HON. ASST. PHYSICIAN, LIVERPOOL ROYAL INFIRMARY; VISITING PHYSICIAN, MILL-ROAD INFIRMARY, LIVERPOOL

H. A. OSBORN, D.M. Oxon., D.P.H.
PATHOLOGIST, MILL-ROAD INFIRMARY; AND

F. PYGOTT, M.B. Liverp., D.P.H.
RESIDENT MEDICAL OFFICER, MILL-ROAD INFIRMARY

THE fact that pneumonia has been called the friend of the aged underlines the well-known importance of age as a factor in its prognosis. Osler said that to die of pneumonia is almost the natural end of old people, and Fagge in his "Principles and Practice of Medicine" wrote: "To old people, or to those who, though not old, are worn out by overwork, dissipation or drunkenness, the disease is exceedingly fatal, although from time to time one sees a patient recover even when the circumstances have seemed most adverse." Ferguson and Lovell (1928) were convinced that age is the most important single factor in determining the death-rate from pneumonia—much more important than the type of the infecting pneumococcus. W. Pasteur (1907), reporting 528 cases from the Middlesex Hospital, and Joules (1933), with a series of 496 cases in a Birmingham hospital, give the following figures (Table I.) of the death-rate for successive decades of age:—

TABLE I

Death-rate for Successive Decades of Age

—	2nd.	3rd.	4th.	5th.	6th.	6th and over (per cent.).
Pasteur ..	5·2	14·2	34·3	39·3	46·6	68·6
Joules—						
Males ..	2·0	13·2	21·6	41·0	40·0	57·0
Females ..	0	16·7	14·0	39·0	47·0	—

In America both Locke (1923) and Cecil (1933) note that the death-rate for any particular age is approximately the age figure expressed as a percentage.

Table II. gives the figures for a sequence of 283 patients suffering from pneumonia admitted to Mill-road Infirmary, Liverpool, between March, 1934, and July, 1935. As patients are admitted there only over the age of fifteen years, they are here grouped for each subsequent decade.

TABLE II

Age	15–25	25–35	35–45	45–55	55–65	Over 65
Cases	85	64	38	48	33	15
Deaths	4	14	14	23	19	10
Mortality (per cent.)	5	22	37	48	57	67

A man wears out, "the soul's dark cottage, battered and decayed" develops many chinks; and attacked by pneumonia, "the old are likely to die, the young to recover" (Sturge, quoted by Osler). But what does that mean in terms of tissues and organs, and their reaction to this particular infection? In any bacterial disease the final issue depends both on the "seed" and the "soil," and it is not always easy to assess fairly their proportionate influence. Indeed, it has been suggested by Blake in America that the reason why Type 3 pneumococcal pneumonia is the most fatal of all types is that it especially attacks old people.

The importance of the "seed" is well shown by J. F. Gaskell's (1925) experiments on rabbits. Through a tube inserted into the trachea he introduced into the lungs pneumococci of varying virulence. The nature of the lesion obtained depended consistently on the virulence of the organisms, and not upon the dose given. Pneumococci of small virulence produced a bronchitis, or a patchy, low-grade pneumonia, those of a higher titre, a much more invasive lobar lesion, and those of the highest titre, a grave septicæmia—often without any very extensive lesions in the lungs.

The "soil," the patient attacked by the pneumococcus, is conditioned by the state of the various organs, by the degree of nutrition, and by the reserves that can be called upon to meet the illness. The influence of poverty and undernutrition, for example, has been noted by Russell (1932), who contrasted the mortality figures for pneumonia in the Bellevue and in the Rockefeller Hospitals, New York. The former, with a much poorer clientèle, showed a mortality double that of the latter. Mill-road Infirmary draws its patients mainly from a very poor area, and it is significant for an estimation of the quality of its "soil," that the total mortality for the 283 cases already mentioned was 29·7 per cent., whereas during the same period the percentage of deaths from pneumonia over Liverpool as a whole—and it is a distressed area—was 22·5. Economic distress tended to hit the older men and women more heavily than the younger. Those who were over forty years of age often had to maintain large families of young children on low wages, "dole," or "public assistance"; on the other hand, the younger patients were usually members of a grown-up family, some at least of whom were in work. However, over one-third of a series of nearly 200 men patients with pneumonia studied by us were unemployed persons, and many more were only casual labourers; no fewer than one in eight, asked his occupation, replied that he was unemployed, and it became clear that this usually meant that he had been so long unemployed that he no longer identified himself with any particular trade or work. These social considerations are mentioned in order to indicate the nature of the hospital field, and must be borne in mind in any interpretation of figures obtained from a study of cases at this hospital.

When Osler said that "the toxæmia outweighs all other elements in the prognosis of pneumonia," he raised a point of clinical judgment that is worth fuller analysis than is often given to it. Those of us who work at the bedside think that as our experience and judgment mature, we can discern telling expression of "toxæmia" in, for example, the general look of the patient, the state of his skin or of the capillary circulation, the quality of the pulse; but these are not altogether objective criteria. The extent to which a patient with pneumonia is suffering from "toxæmia" must be dependent on the one hand on the virulence of the infecting organism, and on the other on the resistance of the patient, and that resistance must depend on a whole series of factors peculiar to the individual patient. What then, in more exact detail, is this "toxæmia," and why, again in more exact detail, is the age of the patient so important a factor in prognosis? Questions of this sort occupied our minds particularly throughout 1935, during which period some 200 cases of pneumonia came under our care in Mill-Road Infirmary, and formed the material for various studies both at the bedside and in the clinical laboratory.

AGE AND BACTERIÆMIA

It is often stated that in the early stages of pneumococcal pneumonia, pneumococci can almost invariably be discovered in the blood stream by blood culture. This alleged fact is linked with the conception of the disease as primarily a septicæmia, and it may be thought to have experimental backing in Gaskell's observation, in the studies referred to earlier in this paper, that whenever lesions were obtained in his experimental animals, pneumococci were always found in the blood on the first day or two, disappearing from it by the fifth or sixth day in all but the severest infections. Some clinicians and pathologists, therefore, regard a positive blood culture as not of serious significance unless it persists, thus following the earlier lead of Rosenow (1904), who studied 145 cases of his own, and reviewed the findings of previous workers.

Cruikshank (1933), in his Milroy lectures on pneumococcal infections, favouring the theory of invasion by lymphogenous spread from the bronchial mucosa near the hilum, thinks that "spilling over" of the organisms into the blood stream may occur at any time during the first four or five days of the infection, disappearing in patients who recover, but often becoming a true septicæmia in the fatal cases. In his own series of cases, of six seen on the first day of the illness, two gave a positive blood culture; of those seen on the second day 28 per cent. gave a positive blood culture, and of those on the third day, 42 per cent. The actual numbers of the cases seen on the second and third days are not given in his paper.

Our own figures show that of 9 cases seen on the first day of illness, 8 gave a positive blood culture (10 c.cm. of blood being taken); 3 out of 13 patients admitted on the second day and 7 out of 23 on the third day had bacteriæmia. Patients under forty years of age, who gave a positive blood culture in the first four days of their disease, numbered 10 out of a total of 30; of these 10, 4 died, whereas none of the remaining 20 cases without bacteriæmia were fatal. If these small figures have any significance, they suggest that even in young people a positive blood culture in the early stages of the disease is serious enough. In patients over forty years of age in this series, a positive blood culture in the early stages of the disease (first, second, third, or fourth day) was always associated with a fatal issue. There were 20 of these older patients in all; 13 of these gave a positive blood culture on the day of their admission to hospital and all the 13 died; the remaining 7, without bacteriæmia, all recovered.

Blood cultures were made from a series of 90 patients in all, 10 c.cm. of blood being taken for culture on the day of admission whether the disease was early or late. Of these 90, 41 gave a positive blood culture, and 27 of these died (66 per cent.). Of the 49 patients without bacteriæmia, 5 only died (10 per cent.). Analysing the figures with the age factor in mind, and taking the age of forty as a dividing line, the striking fact emerges that in the younger group not one of the patients with a negative blood culture died, and of the 19 with bacteriæmia, 9 (47 per cent.) died. In the older group there were 41 cases; 22 gave a positive blood culture, and 18 of these died, a mortality of 82 per cent., nearly double that of those in the younger group, while of the 19 patients without bacteriæmia, 5 died (26 per cent.). It should be made clear that none of the cases in this series were treated with antipneumococcal serum.

These are admittedly small numbers on which to base any far-reaching conclusions, but they do suggest that at any age a positive blood culture is of serious import. Moreover, it is clear that in patients over the age of forty, certainly in the field covered by this hospital, a positive blood culture is of very grave omen indeed.

In many of the papers dealing with bacteriæmia in pneumonia, the age figures are not given [Langley (1933), Rosenblueth (1928), Cecil and Plummer (1932), Cruikshank (1933), Clough (1917), Sutton and Sevier (1917).] Koch (1932) made serial colony counts and records that every patient with an increasing or stationary number of pneumococci in the blood died; there were 20 of these patients, 6 of them over forty years of age. On the other hand, there were 11 patients with a small and decreasing number of pneumococci; of these patients 2 only died. In this group there were 2 patients over forty; one, aged forty, died on the fourth day, the other, aged fifty, with less than 30 colonies per cubic centimetre of blood on the first day, and none on the second day, recovered. Christie (1933) had 24 patients under forty with bacteriæmia, of whom 12 died, and 9 over forty (2 of Type 1, 4 of Type 2, and 3 of Type 3), all of whom died. It will be seen that the mortality of Christie's younger and older groups with bacteriæmia is very similar to that of our own cases.

In view of the gravity of a positive blood culture, especially in older patients, we feel that it is of vital importance to detect a bacteriæmia in the early stages of the disease, and in view of the favourable influence of antipneumococcal serum on mortality in suitable cases, to use it whenever it promises a possibility of turning the scale between life and death. One of us (R. C.), in association with Dr. L. Findlay, has recently reported a case of pneumonia with bacteriæmia, and later complicated by suppurative thyroiditis, the patient being a woman of fifty-three, in which the early administration of serum could reasonably be claimed to have prevented an issue otherwise fatal.*

While "toxæmia" suggests the impact of the "seed," and age emphasises the quality of the "soil," nevertheless man is not an experimental animal, and it is difficult to disentangle the variables in human disease. May not the clinical feature of "toxæmia" depend not only upon the virulence of the infecting organism, but also upon the integrity of the patient's various organs? The condition of the circulatory system, heart, and arteries has long been known to influence the patient's response to the disease; the pneumococcal infection normally may hit other organs beside the heart and lungs, and

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* The figures showing the various types of pneumococci in the positive blood cultures are so small as to be of little significance. They are as follows:—

Patients under Forty

Type 1	7 cases,	3 deaths.
,, 2	3 ,,	3 ,,
"Group X"†	9 ,,	3 ,,

Patients over Forty

Type 1	3 cases,	2 deaths.
,, 2	7 ,,	6 ,,
"Group X"	12 ,,	10 ,,

† No Type 3 serum was available for typing.

it seemed to us that a fair guide to the seriousness of the infection might be offered by its attack on two main eliminating organs, the liver and the kidneys. Moreover, if the infection attacks a patient with already damaged liver or kidneys, it is likely that his chance of recovery will be all the more seriously impaired.

In both liver and kidneys pneumonia usually produces cloudy swelling; does it do any more serious damage? Lemierre and Abrami (1910) described 3 fatal cases of pneumonia complicated by hepatitis and jaundice, pneumococci being recovered in pure culture from the gall-bladder. On the other hand, Elton (1929) found in 70 successive cases of lobar pneumonia that no patient died who had an icterus index of over 17; he argued, therefore, that an increase of bile in the blood stream had a lethal effect on the pneumococci, due to the bile salts. Our experience did not confirm this. In our series of cases nothing very unexpected emerged as far as the liver is concerned. If the presence of excessive urobilinuria and an increased icterus index is any guide (and there was no evidence of serious blood destruction), then it would appear that these patients may suffer a fair amount of temporary damage to the liver by cloudy swelling and yet survive. Nevertheless an increase of bile in the blood stream did seem to indicate a disturbance of liver function with an added prognostic load. The icterus index of 91 patients was estimated, and Table III. sets out the findings:—

TABLE III

Patients under Forty

Icterus index under			
10	32 cases,	3 deaths.	Mortality 9 per cent.
10 +	12 ,,	4 ,,	,, 25 ,,
20 +	4 ,,	0 ,,	
30 +	4 ,,	1 ,,	

Patients over Forty

Icterus index under			
10	25 cases,	10 deaths.	Mortality 40 per cent.
10 +	9 ,,	5 ,,	,, 64 ,,
20 +	1 ,,	1 ,,	
30 +	4 ,,	3 ,,	

It will be seen that a clear-cut increase of the icterus index above the normal is associated with almost a threefold mortality-rate in the younger group. In the older group the death-rate is high in any case, but the added load is still obvious. It is of interest to note from a more detailed analysis of the cases concerned that renal insufficiency has a much graver influence on mortality. Most of the patients with a low icterus index who died showed evidence of serious renal damage. There were a few cases, however, which made it clear that an obviously damaged liver, revealed in life by frank jaundice, or post mortem by the discovery of a more or less severe degree of hepatic cirrhosis, was a very grave handicap indeed.

AGE AND THE RENAL FACTOR

Apart from the production of cloudy swelling with consequent slight "febrile albuminuria," can the pneumococcal infection hit the kidneys more severely? One of the earliest cases in our series was a fulminating infection in a girl of twenty-two; she died within 36 hours of the initial rigor, with a complete consolidation of the middle lobe only. She was what one would term clinically an intensely toxic case; the urine contained much albumin and casts of the type associated with acute nephritis. At autopsy the kidneys were found to be the seat of an acute, diffuse hæmorrhagic nephritis. It is true that a few pathologists mention pneumococcal infections as a cause of acute nephritis, and Aschoff (1919) goes so far as to say that pneumonia is one of the principal causes of pure acute glomerular nephritis, but the general opinion seems to be that it is a rare causal factor. Nephritis as a possible complication is not even mentioned in the article on pneumococci in the Medical Research Council's "System of Bacteriology." Councilman (1897) came across only one instance in a series of 110 patients with croupous pneumonia, and Blackman and Rake (1932), recording the results of histological examination of the kidneys in 95 cases of pneumococcal infections of various types, found no example of acute diffuse nephritis following lobar pneumonia alone (32 cases), and only 9 instances, all in children, in other forms of pneumococcal infections such as empyema or pericarditis, 7 of whom had had the infection for over two weeks.

There was only one other instance of acute diffuse nephritis in our series, in the case of a man of forty-nine. But it was striking how grave a burden was the possession of already damaged kidneys. Hadley in 1907 stated that 82 per cent. of patients attacked by pneumonia died if an antedecent chronic nephritis was present. In our own series there were 33 autopsies; 8 were on patients under forty, and in addition to the already mentioned example of acute diffuse nephritis, 2 showed chronic interstitial renal changes. Of the remaining 25 older patients (over forty years) there was one instance of acute nephritis and 13 had chronic interstitial nephritis. Of 8 of these patients who were over sixty years old, 7 showed chronic interstitial nephritis. Moreover, it was clear from the character of the urinary deposit in most of the patients with already damaged kidneys that a more or less serious degree of acute toxic damage was superadded; and this was confirmed by examination of the kidneys removed post mortem.

Blood-urea estimations were made on a series of 93 patients. In the younger group of patients under forty, 32 out of 51 had a blood-urea of over 40 mg. per 100 c.cm., and 7 of the 32 died. Two young men with a blood-urea content of over 90 and well over 100 mg. per 100 c.cm. actually survived.

One was a man of twenty-nine, admitted on the eighth day of his illness with an atypical pneumonia, a positive blood culture ("Group X"), and a blood-urea of 118 mg. per 100 c.cm., which dropped five days later to 65 mg.

The other was a boy of eighteen, admitted on the third day of illness with a basal pneumonia, but a negative blood culture. Attempts to secure a sample of sputum for typing failed. The urine contained a moderate amount of albumin, but no casts were found until a week after admission, when both cellular and coarse granular casts were seen, together with a few red blood corpuscles. The blood-urea on admission was 92 mg. per 100 c.cm., and four days later it had risen to 310 mg. (confirmed by repeated estimations). At that time the boy was apparently uræmic, with muscular twitchings and noisy delirium. On the seventh day after admission the temperature became normal by lysis; on the twelfth day the blood-urea was 370 mg. per 100 c.cm. He began to improve, and on the twenty-second day the blood-urea had fallen to 65 mg. Two months later, six weeks after his discharge from hospital, it was 46 mg. with no renal elements discoverable in the urinary deposit. Blood-pressure readings gave no indication of the extent of the renal damage; they remained virtually constant throughout the illness, at a level of 110/70 mm. Hg. The case shows the remarkable vitality of youth, even with the added weight of a toxic nephritis.

The older group of patients over forty fared badly. There were 42 of them, of whom 32 had a blood-urea of over 40 mg. per 100 c.cm. Of these 32, 21 died (three times as many as those in the equal group of younger patients); and not one with a blood-urea of over 70 mg. survived. In the older patient with

The present method of treatment consists of giving 3 g. (grs. 45) of mandelic acid in the form of syrup of ammonium mandelate, four times a day after meals. The salt is very soluble, the dose usually being contained in one tablespoonful of the syrup. The fluid intake is limited to two pints in the day though, in certain patients, especially during the puerperium, a larger intake is allowed.

It is essential to make certain that the urine becomes sufficiently acid. Mandelic acid acts far better in an acid urine. The figures obtained by Helmholz and Osterberg show that while at pH 5·0 a solution of 0·25 per cent. of mandelic acid is bactericidal for most organisms, at pH 5·7 a 1 per cent. solution is necessary to produce the same effect. While certain cases of urinary infection treated with mandelic acid may clear up without the urine ever having become very acid, no case should be accepted as a failure unless the urine has been fully acidified. It therefore appears logical to try to acidify the urine in every case. The urine, if sufficiently acid (i.e., pH 5·3 or less), should give a pink colour with methyl-red and this test, which takes about one minute, should be performed once or twice at the commencement of the treatment. In the normal case the pH falls rapidly and once a satisfactory pH has been reached, this is generally maintained and further estimations are unnecessary. There appear to be only three possible causes for the urine not becoming sufficiently acid:—

(*a*) *Insufficient intake of acidifying salts.*—In certain patients treated with ammonium mandelate, it may be necessary to give additional ammonium chloride in order to reduce the pH to 5·3. In a series of 18 cases this has only been necessary in 3, and of these 2 were puerperal cases on an increased fluid intake. Cook and Buchtel found that only 1 of 15 patients treated with ammonium mandelate required a secondary acidifying drug.

(*b*) *Renal insufficiency* remains the main contra-indication *to the use of mandelic acid therapy.* A damaged kidney is unable to excrete a sufficiently acid urine, and hence the treatment is unlikely to be successful. Further, *in the presence of impaired renal function, acid salts may* produce a state of acidosis.

(*c*) *Infection of the urine with a urea-splitting organism.*—If the urine is infected with an organism, such as *B. proteus*, which can form ammonia from urea, it is impossible to acidify the urine. Lyon and Dunlop have reported one such case in which massive doses of ammonium chloride and calcium chloride were given and the urine remained persistently alkaline. If the urine remains alkaline on large doses of acidifying salts and yet no symptoms of acidosis appear, the presence of a urea-splitting organism should be suspected.

Results

I have now used mandelic acid in a series of nearly a hundred unselected cases of various urinary infections and the results obtained are shown in Table II. It is difficult, from a consideration of such figures, to draw definite conclusions as to the value of mandelic acid, for there are many varied types of urinary infection and the percentage of cures in any series of cases must depend largely on the relative numbers of the various types of infection included in that series. In Table III. the various factors that are believed to have led to failure of the treatment are summarised. From impressions gained during the use of the treatment, together with a consideration of the two tables, it is now possible to foretell the results that may be expected from the use of mandelic acid in various types of cases and also to recognise the indications for the use of the new form of treatment.

TABLE II

Results of Mandelic Acid Therapy

—	Type of case.	Cases.	Cured.	Not cured.
1	Recent acute pyelitis.	14	13	1
2	Recent acute cystitis.	5	4	1
3	Chronic pyelitis.	18	10	8
4	Chronic cystitis and bacilluria.	26	18	8
	Apparent simple infections.	63	45	18
5	Pyelitis of pregnancy.	13	3	10
6	Puerperal pyelitis.*	11	6	5
7	Miscellaneous cases.	6	2	4
	Total cases.*	93	56	37

Apparent simple infections	..	71 per cent. cured.
Total cases*	.. ..	60 „ „

* Five of the 10 patients who were unsuccessfully treated during pregnancy were further treated in the puerperium. These 5 cases are included in the 11 cases of group 6 and have therefore been counted twice. Since 4 of these resisted treatment, the actual cure-rate based on the number of patients as opposed to cases is 56 out of 88 (i.e., 63 per cent.).

TABLE III

*Analysis of Failures with Mandelic Acid Therapy**

		Cases.
37 failures.	Probable presence of urinary stasis or obstruction	21
	Failure to acidify the urine	2
	Did not complete treatment	2
	Renal irritation—treatment abandoned ..	2
	No cause for failure found	10

—	—	Failures (37 cases).	Nature of case.
1	Recent acute pyelitis.	1	Hypertension. Blood-urea 58 mg. per cent.
2	Recent acute cystitis.	1	Hyperthyroidism.
3	Chronic pyelitis.	8	(1) Renal calculus. (2) Hydronephrosis (Case B). (3) Could not take ammonium chloride. (4) Treatment stopped because of casts. (5) (6) (7) Failures not fully investigated. (8) No cause of failure found.
4	Chronic cystitis and bacilluria.	8	(1) Post-operative retention. (2) Previous pelvic operations. (3) Infection with urea-splitting organism. (4) Stricture (died, ascending pyelonephritis). (5) Residual urine following prostatectomy. (6) Prostatic calculi. (7) Heart failure, treatment stopped because of increased albuminuria. (8) No cause found.
5	Pyelitis of pregnancy.	10	Pregnancy.
6	Puerperal pyelitis.	5	Four cases infected and treated during pregnancy (also included in group 5). Two cases did not
7	Miscellaneous.	4	((3) Paralysed bladder—ascending pyelonephritis. (4) Large renal calculus. Nephrostomy.

* Many of these cases were symptomatically much improved. *The term "failure" implies a failure to obtain sterile urine.*

ACUTE PYELITIS OR CYSTITIS

There is no indication for the use of mandelic acid in the treatment of a patient acutely ill with a urinary infection until alkalis have been given a thorough trial. For while it is possible in many such cases to obtain a rapid fall of temperature by the use of mandelic acid, this can be accomplished both with certainty and with greater comfort to the patient by the use of alkalis. Mandelic acid treatment appears undesirable in febrile cases, firstly because the fluid intake must be limited, secondly because there is probably a greater danger of producing symptoms of acidosis in such patients, and finally because the hyperacid urine, essential to successful treatment, is more likely to cause renal irritation during the acute phase of pyelonephritis. In the few cases of acute infection in which some complicating factor causes a persistence of the temperature despite full doses of alkalis, mandelic acid may lower the temperature and relieve the symptoms.

Alkalis, though relieving the general symptoms, rarely, if ever, cure urinary infections. While some cases of acute pyelitis undergo spontaneous cure, many patients continue to harbour coliform bacilli for weeks, months, or years after the acute symptoms have subsided. Mandelic acid has proved extremely valuable in the treatment of such recent acute cases of urinary infection. Of 19 cases of acute pyelitis or cystitis, treated within a few days or weeks of the acute attack, 17 have been discharged with sterile urine. Patients with acute urinary infections were often, in the past, regarded as cured once their temperature had fallen to normal. But they are not really cured unless their urine is rendered sterile, for the urinary tract tends to become chronically infected and the disease much more resistant to treatment. Further, there is a continual risk of a severe febrile exacerbation. The correct treatment of acute cases would therefore appear to be, first, the relief of the symptoms with adequate doses of alkalis and then, once the temperature has fallen, the cure of the infection with mandelic acid. No patient with an acute urinary infection should be discharged until an attempt has been made to sterilise the urinary tract, and in the few cases in which this fails further investigation of the cause of the infection is indicated.

CHRONIC URINARY INFECTIONS

Some of the most satisfactory results of mandelic acid therapy have been seen in cases of long-standing urinary infection; cases of chronic pyelitis and cystitis, which have resisted all other forms of therapy, have cleared up rapidly under the treatment.

Provided that the treatment is properly carried out and that the urine becomes sufficiently acid, the chief cause of failure lies in urinary stasis. The presence of any obstruction to the outflow of urine, either from the renal pelvis or the bladder, makes the sterilisation of the urinary tract far more difficult. This is clearly shown in Table III. Such cases may be cured by mandelic acid, but if not, they are usually made more comfortable. The pyuria can be controlled and the frequency and pain relieved. The infection, however, tends to persist and to regain full vigour once the treatment is stopped. It has often been stated that every case of chronic urinary infection should be fully investigated for some underlying lesion by means of cystoscopy, X rays, and pyelography. In many chronic cases, however, the infection can be eradicated by the use of mandelic acid and the present method of treating these cases commences with a full course of the acid therapy. Only if the infection proves resistant or if it rapidly recurs whenever treatment is stopped, need patients be subjected to full investigation. A great advantage of this "test" treatment is that it causes less inconvenience to the patient, who can not only be treated while still at work, but may ultimately avoid the ordeal and expense of a complete urinary investigation. It must be emphasised that if a urinary infection fails to clear up with a full trial of mandelic acid, some underlying obstructive lesion is probably present. This method of treatment is illustrated by the following cases :—

CASE B.—A woman, aged 55, was referred to Dr. J. W. McNee's out-patient department as a case of chronic urinary infection. There was no obvious cause for the infection, which had followed an "inflamed bladder" twelve years previously. The patient had no symptoms beyond malaise and frequency. The urine contained pus and coliform bacilli. She was first of all treated, as an out-patient, with ammonium mandelate, and later with sodium mandelate and ammonium chloride. The infection proved resistant, and she was admitted to hospital for investigation. A completely unsuspected large left hydronephrosis was found, and the urine from the right ureter was shown to be sterile. A left nephrectomy was performed by Mr. F. J. F. Barrington. The urine after operation was still infected but cleared rapidly with a course of mandelic acid, and the patient was discharged with sterile urine.

CASE C.—A woman, aged 37, attended Dr. McNee's out-patient department complaining of a severe pain on micturition and of frequency for the past three weeks. She was afebrile, and had suffered from "kidney trouble" for some twenty years. She had tenderness in her left iliac fossa, and her urine contained a trace of albumin, a few pus cells, and on culture grew *B. coli*. She was given ammonium mandelate as an out-patient, and a specimen of urine taken three weeks later showed no albumin, a few epithelial cells, and was sterile on culture. The treatment was stopped, and fourteen days later the urine was still sterile.

PYELITIS OF PREGNANCY

In cases of pyelitis occurring during pregnancy, urinary obstruction is always present and these cases are notoriously difficult to cure. In a series of 13 such cases, only 3 obtained sterile urine before delivery, though many of the others were symptomatically relieved. Such cases in the febrile stage should first be treated with alkalis, but if the temperature persists mandelic acid should be tried. In 2 cases the temperature has responded to mandelic acid after failure with alkalis. If the temperature falls with alkali therapy and the patient then remains free from symptoms on alkalis, it is probably better to persist with this treatment and to reserve mandelic acid for an attack on the infection soon after delivery. If, however, the symptoms persist, mandelic acid usually relieves the pain and frequency and may, in occasional cases, sterilise the urinary tract.

PUERPERAL PYELITIS

Two forms of puerperal pyelitis are recognised: one dating from an infection already present during pregnancy and the other starting in the puerperium. The prognosis of the latter is good and both tend to clear up in the months that follow delivery. Many cases of chronic urinary infection, however, date from childbirth and an attempt should be made to cure every case of puerperal pyelitis, even though it be symptomless. Mandelic acid appears to be an effective agent in such cases. It does not upset the breast-fed child, but the fluid intake may have to be increased up to four pints or more a day in order not to interfere with lactation. The treatment can be carried on in an ambulatory form. In a series of 11 cases, 6 obtained sterile urines, 4 of the failures occurring in patients who had had pyelitis during their pregnancy.

MISCELLANEOUS CASES

Lyon and Dunlop reported 2 cases of tuberculous disease of the urinary tract complicated by a secondary infection, and in both the superadded infection was cured with mandelic acid. There appears to be some risk that an underlying tuberculous infection may be missed, and if a case of urinary infection is cleared up and, despite repeated sterile cultures, pus cells persist in the urine, a careful search must be made for tubercle bacilli.

The action of mandelic acid is not specific for the coliform bacilli. It will act in vitro on various other organisms and, clinically, several cases infected with the *Staphylococcus albus* have been cured. Helmholz and Osterberg have also cured two patients whose urinary tracts were infected by *Streptococcus fæcalis*. Mandelic acid has been successfully used in the treatment of paratyphoid urinary carriers and should prove of value in the control of such cases.

In certain cases of chronic urinary infection in which resistance to treatment is associated with residual urine in the bladder, better results can be obtained by combining oral therapy with bladder lavage, using solutions of sodium mandelate. The solution used has been prepared by partly neutralising the mandelic acid with alkali and a 2 per cent. solution at pH 5·0 has been found satisfactory. This treatment in conjunction with oral therapy has been used with success in a case of infection following post-operative retention, and has also proved valuable in a hemiplegic patient with an infected bladder.

RELAPSES

In a fairly high proportion of cases in which mandelic acid appears to cure the urinary infection, relapses later occur. This has been especially noticeable in chronic urinary infections. The tendency to relapse is, of course, not limited to cases treated with mandelic acid.

In the cases originally treated the criterion of cure was the sterility of urine on culture, whether or not the patient was still excreting mandelic acid. More recently no patient has been considered cured unless a specimen of urine, taken after treatment has been stopped for several days, is also sterile on culture. The presence of mandelic acid in the urine will inhibit the growth of organisms, and in cases of persistent urinary infection, if the patient is still taking mandelic acid, the urine may appear sterile. On stopping the treatment, however, the inhibited organisms regain their power of multiplication and signs of infection reappear. Thus, cases of chronic cystitis are often perfectly well while taking mandelic acid, but relapse whenever the treatment is stopped. These "relapses" are really examples of a failure to cure.

If the urine has become sterile, a relapse must signify a reinfection. In a few cases this may be from a loculated collection of infected urine, more often it must be from an extra-urinary source. Most cases of urinary infection are now believed to result from a blood-borne spread of *B. coli*. The organisms are excreted through the kidneys and only settle and cause an infection in the urinary tract if there is either urinary stasis or some suitable niche in the mucous membrane where they can multiply. The walls of the pelvis, ureter, or bladder in patients with long-standing urinary infection are usually inflamed and probably remain so after the infection has been rapidly eradicated. It seems possible that a reinfection occurring on the previously roughened mucous membrane may explain some of the relapses and the observation that in such cases the infection responds very rapidly to a few days' treatment and that eventually a permanent cure may be achieved, suggests that the inflamed mucous membrane gradually heals.

In cases of long-standing infection it is necessary to persist with the treatment for three or four weeks, and if the urine becomes sterile, the patient must be warned of the possibility of reinfection and should be advised to take the medicine again for a few days if any symptoms return or if the urine become turbid. It has been suggested that, as a prophylactic measure, it is better to take the acid for a few days once a fortnight than gradually to reduce the dose over a prolonged period, as by the latter method the optimum pH of the urine and concentration of mandelic acid may not be achieved.

CONTRA-INDICATIONS

Mandelic acid therapy is applicable to a wider range of patients than is the ketogenic diet, and in the present series few serious contra-indications have been discovered. Until further experience has been gained any list of contra-indications to the use of this form of treatment cannot be considered complete.

The presence of renal insufficiency, as shown by a raised blood-urea, remains the main contra-indication to the use of both mandelic acid and the ketogenic diet. In patients with impaired renal function ammonium mandelate is unlikely to clear up the urinary infection and may produce symptoms of acidosis, depression, dizziness and dehydration. In such cases the new form of treatment should not be used unless a careful watch can be kept on both the patient and his urine.

Renal damage may be unilateral or bilateral. In the presence of bilateral damage due to such conditions as chronic nephritis, acute ascending pyelonephritis, or to the fibrotic kidneys associated with long-standing urinary infection, renal function is always impaired and the treatment contra-indicated. This is not the case if only one kidney is damaged, for renal function can be normally maintained by the healthy kidney and the blood-urea is rarely raised. Mandelic acid can be safely used in such cases, but while the sound kidney will excrete a hyperacid concentrated urine, the urine from the damaged kidney will not be acid and will probably contain little mandelic acid. No symptoms of acidosis occur, but the treatment will probably fail.

The absence of one kidney is no contra-indication to the use of the treatment provided that the remaining kidney can maintain normal renal function. Two patients, who had previously had a nephrectomy (for hydronephrosis and hypernephroma respectively), have been cured of pyelitis. If the sole kidney is damaged and a raised blood-urea is present, mandelic acid should not be tried.

I have had no experience in the treatment of cases of urinary infection complicating acute nephritis. Holling and Platt state that mandelic acid can be safely used, but there must be an increased risk of renal irritation, and in all cases in which much albumin or casts are present a careful watch must be kept on the urine. One patient with severe toxæmia of pregnancy associated with chronic pyelitis has been treated with sodium mandelate and ammonium chloride. The albumin, already present in the urine, increased, and the treatment was stopped after two days. It is not certain whether the increased albuminuria was due to the toxæmia or to the mandelic acid, and the case has therefore not been included in the present series. Such cases of toxæmia of pregnancy should probably not be treated with mandelic acid until after delivery.

Mandelic acid has been used in patients of all ages, the eldest in the present series being 74 and the youngest 3. In children the dosage must, of course, be proportionately decreased. In elderly patients a preliminary blood-urea should always be done as the treatment appears to have a depressant effect, probably due to mild acidosis, in such cases.

While not absolutely contra-indicated in the treatment of acute febrile cases of urinary infection, in my opinion mandelic acid should be used only in the later stages of the disease.

In conclusion, it must be emphasised that the risk of producing severe acidosis or renal irritation in any patient depends entirely on the thoroughness of the medical supervision. If the urine is repeatedly examined, if the dose of ammonium mandelate is carefully controlled, and if a watch is kept for early signs of acidosis, many patients, who at first sight appear unsuitable for treatment, can be successfully cured.

Summary

1. A series of 88 cases of various types of urinary infection has been treated with mandelic acid.
2. Ammonium mandelate has been shown to be the most satisfactory and pleasant method of giving mandelic acid.
3. Urinary stasis due to the presence of an obstructive lesion is the commonest cause of failure of the treatment.
4. "Relapses" are often due to failure to cure, but urinary stasis and persistent inflammation of mucous membrane predispose to true reinfection.
5. The main contra-indication to mandelic acid (or ketogenic) therapy is a raised blood-urea. In cases of urinary infection with acute fever the remedy should be reserved for the later stages of the illness. It can be used at all ages.

My thanks are due to the various members of the staffs of University College Hospital and of Westminster Hospital who have very kindly allowed me to treat their patients. My thanks are also due to Messrs. Boots Pure Drug Co. who provided me with a liberal supply of ammonium mandelate (Ammoket).

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MANDELIC ACID IN THE TREATMENT OF PYELITIS IN CHILDHOOD

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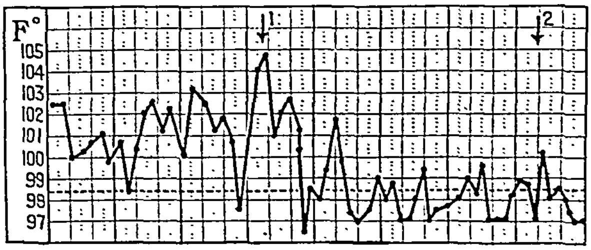
IN 1931 Helmholz and Clark[1,2] introduced the ketogenic diet for the treatment of urinary infections. In their hands it met with considerable success; their good results have also been obtained by many others. The drawbacks of this diet are that it needs much preparation and supervision, and owing to its high fat content it is nauseating to many patients. This last objection is a serious one in the case of children, who often refuse a ketogenic diet after they have had it for a few days.

In 1933[3] Fuller showed that the substance excreted in the urine, responsible for the bactericidal action, was β-hydroxybutyric acid. Unfortunately this substance, when given by the mouth, is quite ineffective, owing to its complete oxidation in the body.

Rosenheim[4] in 1935 experimented with allied hydroxy acids and observed their effect on *Bacillis coli* cultures in vitro. He found that mandelic acid had a bactericidal action which compared favourably with that of β-hydroxybutyric acid. He also showed that such action was over and above that which a mere alteration of the pH would produce. The drug is excreted unchanged in the urine and is non-toxic. Promising results were obtained when it was submitted to clinical trial. Lyon and Dunlop,[5] who reported 16 adult cases of pyelitis treated by this method, found that in most cases a sterile urine was obtained within ten days. Several relapses, however, occurred. Similar good results are reported by Holling and Platt.[6] They used ammonium mandelate in 4 cases, in one of which it was necessary to supplement the drug with ammonium chloride in order to make the urine sufficiently acid.



Effect of ammonium mandelate in a pyrexial case of pyelitis.
1 = treatment started. 2 = urine sterile.

This paper is a report of 36 cases of pyelitis in children under twelve years of age treated at the Hospital for Sick Children, Great Ormond-street, and at the Westminster Hospital. The details are recorded in Table I. Of this series, 3 were male and all but 5 were between the ages of two and eleven. There were 24 cases of acute pyelitis, 10 cases were chronic or relapsing, and in 2 albuminuria and casts were present, due probably to pyelonephritis. As a rule the infecting organism was *B. coli*. Late-lactose fermenters (3) and *B. proteus* and *B. mucosus capsulatus* (1 each) accounted for the remaining cases. Ten of the children had been treated unsuccessfully with potassium citrate before the administration of mandelic acid. A pyelogram was obtained in 10 cases, and this investigation resulted in the demonstration of an anatomical abnormality in 3 of these, 1 of which had unilateral hydronephrosis. Nephrectomy and a subsequent course of mandelic acid brought about the disappearance of the pyelitis in this last case.

METHODS

Mandelic acid with sodium bicarbonate was used in most of the cases, and was given in doses of 15 to 30 grains four times a day according to the age of the child (see Table II.). As a rule half this dose of ammonium chloride was given to acidify the urine. In 6 cases, Neoket (a mixture of mandelic acid and acid sodium phosphate) was used, and in 4, Mandelix* (solution of ammonium mandelate), in doses of 3 to 6 drachms daily.

Daily determination of the pH was made. For use in the ward a Lovibond colorimeter with a pH scale between 4 and 6 was found to be satisfactory. Catheter specimens were taken at intervals of several days, these being cultured soon after they were taken to obviate any in-vitro action of the drug on the organisms. It has been possible to follow up almost all of the patients during the months that have followed discharge.

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*Two fluid drachms contain 45 grains of ammonium mandelate.

TABLE II.—*Dosage of Mandelic Acid*

Up to 6 months	30 grains daily.
6 months to 2 years	30– 60 „ „
2– 5 years	60– 90 „ „
5–12 „ ..	90–120 „ „

To be certain that the dosage was sufficient, the urinary concentration of mandelic acid is now estimated. This is found to reach the level of 0·5 per cent., which Rosenheim regards as quite sufficient.

TABLE I.—SUMMARY OF THE CASES

Case.	Age.	Sex.	Organism.	Days till urine sterile.	Minimum pH.	Remarks.
1	7½	M.	*B. coli.*	7	4·9	Acute pyelitis. Normal pyelogram.
2	3	F.	„	4	5·3	Chronic pyelitis; third attack. Recurrence 9 days later. Death from intussusception. P.M.: chronic pyelonephritis.
3	3½	M.	„	7	5·2	Acute pyelitis. No relapse.
4	3½	F.	„	10	Not done.	
5	9	F.	„	10	5·2	Acute pyelitis. Normal pyelogram. Relapse 1 month later.
6	1½	F.	*B. proteus.*	Not sterile.	6·2	Acute pyelitis, complicating pink disease.
7	7½	F.	*B. coli,* later late-lact. ferm.	10	5·2	Acute pyelitis. Relapse after 1 week. Resistant to further mandelic acid therapy. Pyelogram—poor secretion from left kidney.
8	7	F.	*B. coli.*	14	5·4	Chronic pyelitis. Third attack. Pyelogram normal. No relapse.
9	10	F.	„	5	4·9	Acute pyelitis. No relapse.
10	9	F.	„	4	6·4	
11	9½ m.	F.	„	Not sterile.	5·2	Acute pyelitis. Death from broncho-pneumonia.
12	6 m.	F.	Late-lact. ferm.	Indefinite.	5·2	Acute pyelitis. Potassium citrate given without effect. Relapse. Treated successfully with ammon. mandelate.
13	11	F.	„	19	5·2	Chronic pyelitis. Pyelogram—dilated left ureter. Relapse 5 months later.
14	3	F.	*B. coli.*	10	Not done.	Acute pyelitis. Unsuccessful pot. cit. treatment. No relapse.
15	3	F.	„	10	4·8	„
16	4	F.	„	6	Not done.	Relapse 5 months later.
17	11 m.	F.	„	14	5·6	No relapse.
18	10	F.	„	4	5·0	Pyelitis complicating subacute nephritis. Albuminuria and hæmaturia subsided. No relapse.
19	5	F.	„	17	Not done.	Chronic pyelitis. Previous unsuccessful pot. cit. treatment. Pyelogram normal. No relapse.
20	6½	F.	„	5	5·6	Acute pyelitis. Previous unsuccessful pot. cit. treatment.
21	8	F.	„	5	5·3	Acute pyelitis. Neoket unsuccessful. Urine became sterile on ammon. mandelate.
22	11	F.		8	5·6	Acute pyelitis. Relapse after 2 months treated successfully. No further recurrence.
23	2	F.	„	6	5·4	Chronic pyelitis. Previous treatment with hexamine and pot. cit. unsuccessful. No relapse.
24	10	F.	„	4	5·6	Acute pyelitis. No relapse.
25	4	F.	„	8	5·6	Chronic pyelitis. Pyelogram normal. No relapse.
26	7	F.	*B. mucosus capulatus.*	7. Relapsed almost immediately.	5·6	Chronic pyelitis. Pyelogram normal. One relapse. Resistant to further treatment.
27	3	F.	*B. coli.*	3	5·4	Acute pyelitis. No relapse.
28	10	F.	„	4	5·4	
29	6	F.	„	6	5·4	Chronic pyelitis. Relapse successfully treated with mandelic acid.
30	9 m.	F.	„	7	5·4	Chronic pyelitis. Hydronephrosis. Mandelic treatment after nephrectomy. Urine became sterile. No relapse.
31	11	F.	„	6	5·3	Pyelitis complicating subacute nephritis. Urine rendered sterile by mandelic acid. No relapse.
32	3	F.	„	3	5·3	Acute pyelitis. Neoket unsuccessful. Cured by ammon. mandelate. No relapse.
33	1½	M.	„	10	5·4	Acute pyelitis. No relapse.
34	4	F.	„	6	5·4	
35	4½	F.	Late-lact. ferm.	6	5·2	Chronic pyelitis. Third attack. Pyelograms normal. Ammon. mandelate given.
36	4 7/12	F.	*B. coli.*	7	5·3	Acute pyelitis. Ammon. mandelate given.

m. = months; lact. ferm. = lactose fermenters.

RESULTS

It will be seen from Table I. that in all but 3 cases the urine was rendered sterile, often within a week of the beginning of treatment. The unsuccessful cases included a *B. mucosus capsulatus* pyelitis and a *B. proteus* pyelitis complicating pink disease. In the latter the pH did not fall at any time below 6·2. This rapid action of mandelic acid contrasted favourably with that of potassium citrate which was first tried in some of the cases.

Little difficulty was experienced in reducing the pH to the optimum level of 5·3. When Neoket was used, however, the pH fluctuated a good deal, and did not remain constantly below 6. For this reason, this preparation was discarded in favour of ammonia mandelate, the use of which was attended with much better results. Of the present series 4 were treated with ammonium mandelate. In addition 6 cases are at present undergoing treatment. This preparation is now being used in all cases of pyelitis. In each case the pH was reduced satisfactorily, and the urine rendered sterile within a very short time. Rather larger doses are being used. In some later cases, however, it has been found necessary to supplement the ammonium mandelate with ammonium chloride.

Side effects were noted in two cases: in one of these diarrhœa developed, necessitating temporary cessation of treatment; the other child had some trouble with vomiting. No harmful effects on the kidneys were observed.

So far, of the 36 cases treated, 9 have had relapses; 3 of these have had a second course of treatment which has produced a sterile urine. Of the 9 relapses 3 were in patients with urinary tract abnormalities, and 2 in infections with an organism other than *B. coli*. Such infections do not yield so readily to mandelic acid therapy. Four cases are thus left for which no reason for relapse can be given.

CONCLUSIONS

1. Mandelic acid appears to be an effective remedy for *B. coli* pyelitis in children. The most striking feature is the rapidity with which the urine is rendered sterile.

2. Ammonium mandelate has been given with success and is now being used in preference to other preparations. It is sometimes necessary to use ammonium chloride in addition.

3. Infants as well as older children have been treated without harm. Pyrexia and albuminuria are not contra-indications to the use of mandelic acid.

4. Relapses have occurred in 9 cases out of 36 (25 per cent.). Three of these relapses were in patients with urinary tract abnormalities, while two had infections due to organisms other than *B. coli*, which seem to react less well to mandelic acid. Some of these relapses might have been prevented if mandelic acid therapy had been prolonged. It should be continued at least a week after the urine has become sterile, and probably longer, especially in the chronic cases. Some of these should attend as out-patients and receive continued treatment. Full doses for a short period seem to give better results than small doses for a longer time.

5. Chronic pyelitis may be secondary to an abnormality of the renal tract. It is necessary to exclude such a possibility by pyelography and other means in any patient that does not react favourably to a course of mandelic acid.

6. It will be necessary to follow up large numbers of cases for a considerable period before one can say whether mandelic acid will permanently cure pyelitis.

We wish to thank the physicians and surgeons of both hospitals for permission to use their cases. In particular Dr. Donald Paterson has given much advice and help in this investigation. We gratefully acknowledge the assistance of Dr. W. W. Payne and Dr. A. G. Signy who have carried out most of the pathological investigations.

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THE SIZE OF THE HEART IN ASTHMA AND EMPHYSEMA

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It is generally agreed that enlargement of the heart is often found in subjects of old-standing emphysema and that emphysema ultimately leads to cardiac failure. An enlargement of the right ventricle is said to be a very frequent finding and is clinically regarded as being typical of the "emphysema heart." One has, however, frequently noted the absence of this "typical" feature in the heart during the X ray examination of emphysematous subjects. This investigation was therefore undertaken to determine the effect of emphysema on the heart, in so far as it could be shown radiologically.

The effect of emphysema on the heart is perhaps best studied in subjects of bronchial asthma who (unlike many cases of emphysema of non-asthmatic origin) so often have emphysema without any independent cardiovascular disease that would render difficult the interpretation of any changes that might be found in the heart. During the last two years the opportunity has been taken of radiologically examining the heart in cases of bronchial asthma—in particular cases with varying degrees of established emphysema. As a result, the infrequency of any evidence of cardiac enlargement even in long-standing emphysema has been striking. In those patients with advanced emphysema in whom cardiac enlargement was present, such enlargement was usually general and shared by both ventricles. Enlargement of the right ventricle alone was a most uncommon finding. Even the onset of cardiac failure in emphysema appears to have been rarely preceded or accompanied by a selective or preponderating enlargement of the right ventricle, as might be expected. It is these findings that form the subject of this paper.

THE MATERIAL AND METHOD

Of the patients examined, only those with a long history of bronchial asthma are considered here. There were 55 such cases, the average duration of asthma being 14 years. They had emphysema in varying degrees of severity. A few cases of emphysema of obscure ætiology, some with heart failure, are included. The degree of emphysema is of course not proportional to the length of time that asthma has been present, but established emphysema between attacks was usually found only in patients with a long asthmatic history.

The cases were each examined under the fluoroscopic screen and by radiograms taken at a focal-film distance of 6 ft. with the patient standing and with an exposure time of not less than one second to ensure a diastolic outline. The last two factors had to be varied in a few cases with much dyspnœa. An opinion on the size of the heart as a whole and of each individual chamber in particular was thus formed, but in addition, teleradiographic measurements of the transverse diameter of the heart and of the surface area of its frontal silhouette were made and correlated with the normal measurements for the age, height, and weight of each individual patient predicted according to the method of Hodges and Eyster.[1] It should be emphasised that these measurements were made to confirm the findings on fluoroscopic and radiographic inspection to which they are considered subsidiary. A further series of measurements of the transverse cardiac diameter and of the frontal surface area were made for comparison on a number of cases of bronchial asthma without emphysema and on many non-asthmatic subjects —i.e., presenting no evidence of cardiovascular or pulmonary disease. These were likewise correlated with the predicted normal measurements for the age, height, and weight of each individual patient.

The degree of emphysema was judged by clinical signs and by X ray appearances. It is submitted, in agreement with the findings of Cabot,[2] that the latter are often an indispensable aid in the diagnosis of emphysema. Many cases of "emphysema" have been seen with poor chest expansion and barrel-shaped chests, who showed on screen examination horizontally placed hearts and high-domed diaphragms whose respiratory excursion was full and unrestricted. On the other hand, cases have been met with who showed little clinical evidence of emphysema but with X ray evidence, and in a few cases post-mortem evidence, of its presence to a considerable degree. The depression and flattening of the diaphragm into the relatively fixed inspiratory position—perhaps the most reliable single sign in emphysema—results in a change in the position of the heart. The heart is pulled upon by the attachment of the depressed diaphragm to the pericardium so that the heart elongates; its longitudinal axis approaches the vertical, and the heart becomes more centrally placed in the chest. As a result, a greater part of the heart shadow may be seen to the right of the spine than in non-emphysematous subjects whose diaphragms are at a normal level (Fig. 1). This deflection of the heart to the right (during life) is common in emphysema and must not be mistaken for right-sided cardiac enlargement.

RESULTS

The singular freedom of the heart from disease in cases of long-standing asthma and the longevity of asthmatic patients have often been remarked. But it has long been held that chronic emphysema ultimately leads to cardiac failure. It might be expected that if long-standing emphysema puts any strain on the heart, the brunt of that strain would fall on the right ventricle; that a gradual hypertrophy and enlargement of the right ventricle would result; and that until general enlargement of the heart supervenes with gross decompensation, this selective enlargement of the right ventricle would be recognisable radiologically. In mitral stenosis enlargement of the right ventricle, when present, is very clearly demonstrable by X rays (often before right ventricular preponderance is shown by the electrocardiogram) and may be recognised by an alteration in the shape of the heart, often associated with an increase in its frontal area and other measurements. Similar evidence of enlargement of the right ventricle might be expected in long-standing emphysema but this finding was actually the rarest finding in the present series of cases. Of the cases in this series 5 only showed a suspicion, but nothing more, of enlargement of the right ventricle alone. In none of these cases was there any electrocardiographic evidence of right ventricular preponderance. A definite selective or preponderating enlargement of the right ventricle was not found radiologically in a single instance.* In those cases in whom enlargement of the heart was present, such enlargement was general and shared by *both* ventricles. There were 14 such cases—mostly patients over 40 with advanced emphysema. The large majority of cases, including several cases of well-marked emphysema in younger subjects, showed no cardiac enlargement at all.

Similar findings have been recorded by Podkaminsky,[3] who examined the heart radiologically in a number of cases of emphysema. He quotes Hofbauer's post-mortem findings to the effect that in severe emphysema, even with obliteration of much of the capillary bed, there is no enlargement of the right ventricle. On the contrary, Hofbauer found the heart to be actually smaller than normal. His explanation of this finding will be discussed later, but he states that only when the obliteration of the capillary bed is extreme is there any evidence of cardiac embarrassment. Only in these cases with decompensation was enlargement of the right or of both ventricles found post mortem. Podkaminsky concludes that enlargement of the right ventricle should not be considered a typical feature of the "emphysema heart." On the contrary, in that stage of emphysema which he terms "fairly advanced," the heart is actually smaller than normal.

ELECTROCARDIOGRAPHIC EVIDENCE

Support is lent to these findings by those of Alexander, Luten, and Kountz,[4] who examined a large number of cases of old-standing bronchial asthma, all but one of whom had emphysema. Their electrocardiographic records showed no tendency to right ventricular preponderance—nor was there any such tendency during an attack of asthma. The early findings of Kahn,[5] who reported right ventricular preponderance in 20 per cent. of cases of asthma (10 out of 50 cases), have not been confirmed by later observers, although it is Kahn's article that is most widely quoted. Criep [6] also examined 50 cases of asthma, only 7 of which had no emphysema, and found no tendency to right ventricular preponderance in electrocardiograms. Similar results have also been recorded by Kountz and Alexander.[7] It would appear that right ventricular preponderance is not the usual finding in asthma with or without emphysema—and this in spite of the fact that the anatomical axis of the heart in asthmatic subjects nearly always approximates the vertical.

The *radiological conception* of the heart in emphysema as it would emerge from the study of the present series of cases does not conform to the conception widely held. The heart in emphysema is usually not enlarged and, more particularly, shows no enlargement of the right ventricle. In very advanced emphysema a general enlargement of the heart may be found, the enlargement *being shared by both* ventricles. Electrocardiographically, the usual absence of any tendency to right ventricular preponderance in emphysema would appear to lend support to this conception. The available post-mortem evidence remains to be considered.

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* Although the association of asthma with acute rheumatism is said to be rare, two cases of true bronchial asthma associated with rheumatic mitral disease were encountered but are not included in this series. In both cases enlargement of the right ventricle was present.

POST-MORTEM EVIDENCE

A number of isolated cases of death from bronchial asthma have been recorded with post-mortem findings. Several cases are collected in the paper of Huber and Koessler[8] and a review of 33 cases is given by Coca, Walzer, and Thommen.[9] Unfortunately but scant attention has been given to the heart in many cases, the cardiac findings being summarily and often incompletely described. Yet it is noteworthy that so many recorded cases are to be found with severe emphysema in whom the heart is described as normal or subject to enlargement of both left and right ventricles—in other words, in whom no selective or preponderating enlargement of the right ventricle has been found post mortem.

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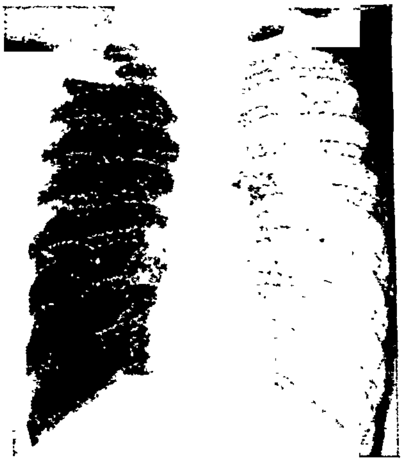

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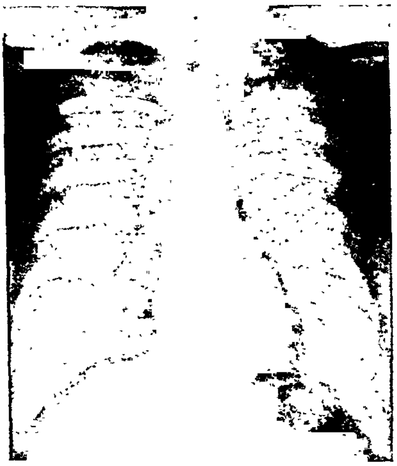

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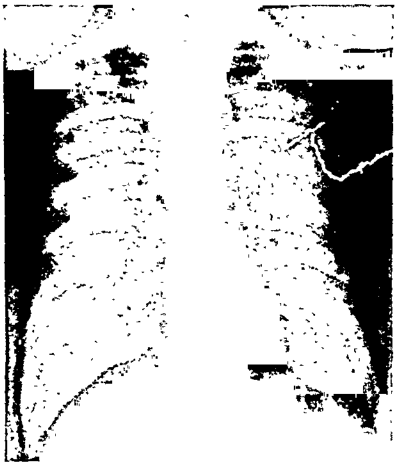

FIG. 1.—Male, aged 34. Emphysema. Low position of diaphragm. Central position of heart.

FIG. 2 a.—Normal male, aged 27. Teleradiogram taken at end of full inspiration.

FIG. 2 b.—Same subject as 2 a. Valsalva experiment. Patient attempting forced expiration against the closed glottis after having taken a full inspiration. Note reduction in size of heart.

This subject has been dealt with more fully by Kountz, Alexander, and Dowell,[10] who examined 66 cases with particular reference to the effect of emphysema on the heart.

They encountered nine cases of severe emphysema who during life had dyspnœa, cyanosis, and dependent œdema, and in whose hearts no enlargement or significant microscopic change could be detected on post-mortem examination. The normal ratio of the right ventricular weight to the left ventricular weight was maintained in all instances. In one, which approached the upper limit of normal, there was sclerosis of the pulmonary artery. One showed both right and left ventricular hypertrophy. The heart in the other cases was normal. These observers state that the dyspnœa and cyanosis present in these cases is attributable to lowered vital capacity which results in a reduced oxygen content of the blood. The œdema was attributed to two factors: increased peripheral venous pressure (usually present in emphysema) and anoxæmia. It is concluded that though heart failure is often associated with emphysema it is not necessarily attributable to it; and further that despite peripheral signs which simulate cardiac decompensation, advanced emphysema does not necessarily affect the heart.

Confirmatory cases of advanced emphysema, including one case with œdema but with essentially negative findings in the heart post mortem, are recorded by Kountz and Alexander,[11] who point out that the presence of dyspnœa, cyanosis, and dependent œdema, not infrequently seen in cases of old-standing asthma with emphysema, need not be considered unequivocal evidence of cardiac failure. A further case of interest from this point of view is described by Steinberg and Figley.[12]

In a very comprehensive study of the subject Kountz and Alexander[7] described the post-mortem appearances in further cases of emphysema. They found the heart presented one of three findings:—

(1) In the majority, not only was there no ventricular hypertrophy, but the heart frequently was smaller than normal. There was no increase in the linear measurements of the right ventricle or in the weight of the right ventricle relative to the total heart weight.

(2) In cases where cardiac decompensation was present, almost always both left and right ventricles were hypertrophied.

(3) The rarest finding of all was hypertrophy of the right ventricle alone. When right ventricular hypertrophy alone was seen it was usually associated with changes in the pulmonary arteries. "We doubt seriously," say these observers, "whether any marked degree of selective right heart hypertrophy does occur unless there is an associated pulmonary arterio-sclerosis."

The radiological findings in the present investigation, which have already been given, are essentially in agreement with the post-mortem findings just quoted.

DISCUSSION

The effect of anoxæmia on the heart muscle might possibly explain the general cardiac enlargement that may be found in advanced emphysema. But the absence of a selective enlargement of the right ventricle in emphysema of varying degrees of severity would be difficult to explain if it were agreed that the blood flow from the right ventricle is impeded in its passage through the emphysematous lung. There is, however, a good deal of experimental evidence to show that there is, in fact, no effective obstruction to the flow of blood through emphysematous lungs in spite of the obliteration of much of the capillary bed—unless the condition is far advanced. Parkinson[16] has recently cast doubt upon this evidence though he agrees that emphysema alone rarely leads to cardiac failure. No attempt is made here to enter into this controversial question, but the evidence is quoted and fully discussed in the work of Kountz and Alexander.[7] The Valsalva experiment, however, might be mentioned, since it simulates conditions found in emphysema and because it lends itself readily to direct observation on the X ray screen—the effect on the size of the heart of attempted forced expiration against the closed glottis.

It was observed during the Valsalva experiment that if the patient strained against the closed glottis, thus distending the lungs, the heart decreased in size, and at the same time the intrapleural and venous pressures rose. During normal inspiration, with depression of the diaphragm and increase in the negative pressure in the pleural cavity, the flow of blood into the right heart is accelerated and there is a concomitant reduction in the venous pressure. But in emphysema the diaphragm is already depressed in the inspiratory position and can descend little or no further on inspiration and the pressure in the thorax approaches positive values. The return of blood to the heart is therefore impeded—hence the increase in venous pressure which is generally to be found in emphysema. This suggests that with lung distension the right heart, instead of overfilling because of any possible obstruction in the pulmonary circulation, may actually be spared owing to retardation of the blood flow entering it. The reduction in the size of the heart observed during the Valsalva experiment seems to be directly due to the retardation of the venous flow into the thorax. This reduction in heart size (which is striking in degree) can be seen on the X ray screen in almost any normal or asthmatic subject who attempts expiration against the closed glottis (Fig. 2), and if the factors causing it obtain in established emphysema, as they do in the temporary lung distension during the Valsalva experiment, a selective enlargement of the right ventricle in emphysema would not be expected to take place. The evidence submitted in this paper indicates that such an enlargement is indeed an uncommon finding.

Alexander, Luten, and Kountz [4] remark that the reduction in the size of the heart seen during the Valsalva experiment probably also occurs during an attack of asthma. I have been able to confirm this and have observed the diminution in the heart size on the fluoroscopic screen during the expiratory distress of an asthmatic paroxysm—this diminution being obvious in spite of the elevation of the diaphragm which is also observed during an attack. It is no doubt associated with the diminished cardiac output and lowered blood pressure which many observers have noted during an attack of asthma.

Size of the heart in asthma without emphysema.—Passing on to another aspect of the subject one must briefly consider the size of the heart in asthma without emphysema. An apparently small or "ptotic" heart is often seen in persons of asthenic constitution. On inspection of a radiogram of the chest (taken standing at the end of a comfortable inspiration) in almost any asthmatic subject, the apparent smallness of the heart is obvious. This may in small measure be due to the configuration of the thorax and to the somewhat low position of the diaphragm generally to be found in asthmatics. It has already been pointed out that any considerable depression of the diaphragm tends to elongate the heart and possibly causes it to rotate slightly round its vertical axis; the longitudinal axis of the heart approaches more nearly the vertical; its transverse diameter decreases and, at the same time, the heart becomes more centrally placed in the chest. These factors may result in an apparent diminution in the size of the heart by radiography. But the smallness of the narrow vertical heart of the asthmatic is not only apparent but real. If a teleradiogram be taken with the patient prone and at the end of a full expiration, the diaphragm will be seen to have risen considerably. The axis of the heart becomes, as a result, more horizontal and its transverse diameter increases. But the heart shadow remains obviously smaller than the normal heart shadow of a non-asthmatic subject of similar body-weight and proportions. In his description of the post-mortem findings in a case of fatal asthma, Rackemann [13] remarks that the heart "appeared to be smaller than normal for the size of the woman." The small heart of the asthmatic is the subject of papers by Götzel and Kienbock [14] and by von Hoesslin,[15] who states it is due to simple hypoplasia.

The smallness of the heart shadow in these cases is confirmed by comparing the measurements of the transverse diameter and frontal surface area in non-emphysematous asthmatic subjects, with similar measurements in normal non-asthmatic controls of similar body-weight and proportions. While the actual measurements in control cases correspond with reasonable accuracy to the predicted measurements, similar measurements in subjects of bronchial asthma are almost invariably well below the predicted normal. The *average* frontal surface area in a series of 45 control cases was 2 per cent. below the average predicted normal for that series. In an equal number of cases of asthma it was 11 per cent. below the average predicted normal for these cases. The difference in transverse diameter between the two groups was rather less—about 7 per cent. As a result of these comparisons it may be said that if the transverse diameter and frontal surface area of the heart of an asthmatic subject are normal for the individual's body build, the heart is likely to be pathologically enlarged. It follows that in estimating cardiac enlargement radiologically, the standard measurements considered normal for the patient's age, weight, and height (Hodges and Eyster) are a false criterion of normality in an asthmatic subject, though these measurements are otherwise a useful adjunct to ordinary screen and radiographic estimations of heart size. In these cases especially, the shape of the heart as a whole and of its individual chambers in particular is of greater diagnostic importance than the total size of the heart shadow.

SUMMARY

(1) A number of cases of bronchial asthma with and without emphysema were examined radiologically with a view to determining the size of the heart.

(2) The heart in the majority of cases of bronchial asthma is smaller than normal for the age, height, and weight of the patient.

(3) If the size of the heart in an asthmatic subject is normal for the individual's body proportions the heart is likely to be pathologically enlarged.

(4) Emphysema may give rise to many of the symptoms and signs of cardiac failure though the heart itself be normal. The normality of the heart in respect to its size can best be judged radiologically; particularly is this true in the presence of emphysema.

(5) Severe emphysema may exist for years without associated cardiac enlargement.

(6) When cardiac enlargement supervenes on old-standing emphysema this enlargement is usually general and shared by both ventricles.

(7) In the absence of associated cardiovascular disease, a selective or preponderating enlargement of the right ventricle in emphysema is an uncommon finding.

(8) The X ray evidence for these findings is given and supporting electrocardiographic and post-mortem evidence is quoted.

I wish to express my thanks to Dr. R. E. Roberts for his interest and for every facility given me in connexion with this work. I am also indebted to Dr. A. Douglas Bigland, from whose asthma clinic most of the cases were drawn, for his kind coöperation and for free access to his case records.

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THE TREATMENT OF POST-DIPHTHERITIC RESPIRATORY PARALYSIS

WITH THE BRAGG-PAUL PULSATOR

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SINCE October, 1935, 12 cases of respiratory paralysis following diphtheria have been treated in Cork Street Hospital, Dublin, by the mechanical apparatus known as the Bragg-Paul Pulsator.*

In all cases the diaphragm was involved as part of a widespread post-diphtheritic paralysis which invariably included the musculature of the pharynx. In addition, all the patients suffered concurrently from circulatory failure which was so severe as to cause death in two of them. As will be seen from the notes given below, the pulsator while in action maintained artificial respiration satisfactorily in all cases. Apart from the two children who died from circulatory failure—who were admitted on the thirty-first and forty-second day of their disease—there were two other fatal cases in the group of 12 here reviewed. One of these patients died from gangrene a fortnight after his diaphragmatic paralysis had been successfully treated in the pulsator; the other death was unfortunately due to a mechanical breakdown of the instrument after the patient had had four days of satisfactory treatment in it. In this connexion, it is only fair to add that when the accident happened the apparatus had had several weeks of constant use in treating the almost unbroken series of cases which followed last winter's epidemic of toxic diphtheria in Dublin. It is probable that the breakdown would not have occurred if the pulsator could have been spared for the periodical overhaul which is advisable for all forms of mechanical apparatus.

In treating very small children it was found that a completely closed air circuit was not tolerated, and in these cases the escape valve of the apparatus was allowed to remain partially open. Pressures of 0–25 mm. Hg gave completely satisfactory results for children of four or five years of age. For the one adult patient treated the maximum pressure was 35 mm. Hg. On two occasions two children developed respiratory paralysis about the same time, and in this emergency (we had only one pulsator) the escape valve was connected to another air-bag by means of a hose-pipe and this belt successfully kept up respiration in the second child without disturbing the child already being treated in the apparatus.

No untoward effects of any kind were seen to follow the use of the pulsator. It is essential that a nurse who understands its working should be in constant attendance, night and day. The rubber parts of the machine (bellows, air-bags, and tubes) are apt in time to undergo the usual degenerative processes, and it is therefore advisable to have duplicate parts in reserve.

CASES TREATED

CASE 1.—(No. 1384/35.) Girl aged 4½ years. Severe concurrent scarlet fever and diphtheria (faucial and laryngeal). Admitted 3rd day, faucial and nasal swabs positive for Klebs-Löffler bacillus. Tongue stripped, 7th†; desquamation, 11th; left cervical abscess opened, 16th, and right cervical abscess, 21st; palatal paresis, 32nd; right internal squint, 49th; pharyngeal paralysis, 52nd; right hemiparesis diaphragm, 54th. Child then put in pulsator. Diaphragm functioning normally 58th when taken out of pulsator. Subsequent course uneventful.

CASE 2.—(No. 1410/35.) Boy aged 4. Admitted 3rd day with faucial diphtheria. Severe early circulatory failure 9th–15th, vomiting every day and only partially retaining glucose salines. Paralysis neck muscles, 27th; palatal paresis, 30th; pharyngeal paralysis, 34th; sudden complete arrest of diaphragmatic movement, 42nd, with acute distress. Put in pulsator with immediate relief. Diaphragm functioning well 46th, when pulsator treatment discontinued. Paralysis of pharynx cleared 54th, neck muscles 68th, and palate 69th days. Subsequent recovery uneventful.

CASE 3.—(No. 1543/35.) Girl aged 7. Admitted 3rd day. Very toxic faucial diphtheria with marked "bull neck." Hæmorrhages into skin 6th day. Severe circulatory failure with repeated vomiting 9th–23rd. Heart in gallop rhythm, 21st–28th; palatal paresis, 24th; paralysis of neck muscles, 26th; pharyngeal paralysis, 28th; late circulatory failure with continuous vomiting, 37th–42nd day, with development of heart-block; complete diaphragmatic arrest, 43rd. Put in pulsator. Pharyngeal paralysis which had cleared on 36th, recurred 44th. Heart regular, 46th. Diaphragm functioning normally 48th and pulsator treatment discontinued. Pharyngeal paralysis finally cleared up 55th; left internal squint, coming on on 56th, cleared 71st, as did palatal paresis. Neck paralysis cleared 80th. Subsequent convalescence uneventful.

CASE 4.—(No. 1813/35.) Boy, aged 4½. Admitted 4th day. Faucial diphtheria, very toxic. Paralysis of palate 29th, neck muscles 32nd, pharynx 37th, and diaphragm 39th day. Then put in pulsator. Severe late circulatory failure with gallop rhythm, 38th. Secretion of mucus from pharynx exceptionally profuse and postural drainage had to be helped by electrical suction. Child quite comfortable and doing well when pulsator broke down on 43rd day (5th day of treatment in apparatus). Asynchronous and spasmodic contraction of diaphragm with accumulation of mucus in pharynx speedily followed by resumption of gallop rhythm. Death took place a few hours later.

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* The original apparatus was designed by Mr. R. W. Paul[1] at the suggestion of Sir William Bragg under circumstances already related in THE LANCET,[2, 3] and was tested and approved by Dr. Phyllis M. T. Kerridge of the London School of Hygiene, who also suggested the form of air-bag used with the apparatus. The model employed in the treatment of the Dublin cases was obtained from the makers, Messrs. Siebe, Gorman and Co., Ltd., 187, Westminster Bridge-road, S.E.1.

† Throughout these case-notes the numerals refer to the day of disease.

CASE 5.—(No. 1994/35.) Girl aged 5. Admitted on alleged 2nd day. Severe faucial and nasal diphtheria. Considerable faucial œdema. "Bull neck" marked, and skin hæmorrhages profuse. Early circulatory failure, 6th–12th; paralysis of palate, 11th, and of neck muscles, 25th; late circulatory failure, 39th–41st; pharyngeal paralysis, 42nd. Complete diaphragmatic arrest, 50th. Put in pulsator. Double ptosis and left internal strabismus, 51st; pharyngeal paralysis cleared, 54th; diaphragmatic movement normal, 54th. Removed from pulsator. Subsequent convalescence uneventful.

CASE 6.—(No. 2237/35.) Boy aged 4. Admitted 31st day with paralysis of palate, pharynx, neck muscles, right arm, leg, and diaphragm in addition to severe circulatory failure. Put in pulsator on admission. Double ptosis, 39th; diaphragm had recovered its function on 42nd day, but as child appeared better in pulsator the treatment was not discontinued, although the machine was stopped at intervals for treatment and examination of chest. Generalised paralysis gradually developed and hypostatic pulmonary congestion was detected on the 45th day, when the temperature rose to 103° F. Death occurred next day. In spite of the condition of this child on admission the pulsator maintained respiration satisfactorily for 16 days before death supervened from a cause other than respiratory paralysis.

CASE 7.—(No. 132/36.) Boy aged 6. Admitted 3rd day. Very toxic faucial and nasal diphtheria with "bull neck." Palatal paresis, 12th; severe circulatory failure, 17th–24th; left internal squint, 23rd; pharyngeal paralysis, 33rd; sudden complete arrest of diaphragm, 45th. Condition critical; put in pulsator; colour returned at once. Diaphragm functioning normally 50th day when pulsator treatment discontinued. Squint and pharyngeal paralysis cleared 52nd and neck paralysis 53rd. Subsequent course uneventful.

CASE 8.—(No. 157/36.) Boy aged 8. Severe faucial and nasal diphtheria. "Bull neck." Admitted 5th; paralysis of palate 12th, neck muscles 15th, left external rectus 19th, pharynx 37th. Severe late circulatory failure accompanied onset of pharyngeal paralysis. Sudden complete arrest of diaphragmatic movement 46th. Put in pulsator. Diaphragm functioning normally 52nd, when removed from pulsator. Pharyngeal paralysis cleared 57th and palatal 58th; all other paralysis soon after. Subsequent recovery uneventful.

CASE 9.—(No. 352/36.) Girl aged 14. Very toxic faucial and nasal diphtheria with skin hæmorrhages. Admitted 4th; paralysis of palate 12th, pharynx 39th. Complete arrest of diaphragmatic movement 42nd. Put in pulsator. Diaphragmatic excursion good on 47th day and pulsator treatment discontinued. Pharyngeal paralysis cleared, 48th. Right side of diaphragm appeared sluggish, 50th. Pulsator applied intermittently at two-hourly intervals until 56th, when finally discontinued. Subsequent recovery uneventful.

CASE 10.—(No. 374/36.) Boy aged 7. Admitted 14th day with early circulatory failure and palatal paresis. No membrane but swab positive K.L.B. Paralysis of pharynx 24th, neck muscles 25th, ciliary muscle 28th. Complete arrest of diaphragm 35th. Put in pulsator. Left facial paralysis 38th. Diaphragm functioning normally 40th. Removed from pulsator. Pharyngeal paralysis cleared 55th, facial 57th, ciliary 58th, neck muscles 59th. Subsequent recovery uneventful.

CASE 11.—(No. 782/36.) Boy aged 10. Admitted 42nd day with severe pharyngeal, palatal, and neck paralysis. Late circulatory failure of severe type developed next day as did a bilateral ptosis. Cardiac condition rapidly deteriorated and was not helped by the accumulation of pharyngeal mucus which had to be repeatedly aspirated by electrical means because it was too viscid for postural drainage to be effective. Diaphragmatic paralysis, 46th. Put in pulsator. Child had a very comfortable day but during the night further accumulation of pharyngeal mucus induced a fatal syncope. This was a missed case of diphtheria admitted extensively paralysed at end of his sixth week, death occurring four days later from cardiovascular failure.

CASE 12.—(No. 834/36.) Man aged 30. Admitted 5th day. Severe faucial and nasal diphtheria. "Bull neck." Much poisoned. Paralysis of palate 16th and pharynx 17th. Early circulatory failure 14th–24th day. Paralysis of neck muscles, 38th. Diaphragmatic paralysis (complete), 40th day. Put in pulsator. Diaphragmatic movement normal 47th day, and pulsator treatment discontinued. No further respiratory paralysis. This man died on 61st day from a gangrenous complication.

In addition to the foregoing cases of post-diphtheritic respiratory paralysis, the apparatus has been used with success to expand a lung collapsed from a chronic empyema. It has also been successful in restarting respiration during the reflex arrest which often occurs during tracheotomy. For the latter purpose the belt should be put on the child, unbuckled, before the operation is begun; when required it can be fastened in a few seconds and the current switched on by an assistant.

CONCLUSION

The Bragg-Paul pulsator has been employed in treating 12 consecutive cases of post-diphtheritic respiratory paralysis. In all of them it maintained respiration satisfactorily. In the only case in which death was due to respiratory paralysis the cause was a mechanical breakdown of the instrument after four days of successful treatment—an accident whose results could be prevented by having either a reserve apparatus or a complete set of spare parts. No interference whatsoever was caused to the routine management nursing and treatment of the patients, all of whom were nasally fed for a coexistent pharyngeal paralysis while in the pulsator. The majority of patients treated were quite young children, but none raised the slightest objection to the application of treatment in the apparatus. They slept normally while having artificial respiration, and the operation of the pulsator in the ward did not affect the comfort of the other occupants. There can be no doubt that the introduction of this simple but ingenious apparatus marks a great advance in the treatment of respiratory paralysis following diphtheria, a condition which in my previous experience has always proved fatal.

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ANÆMIA OF PERNICIOUS TYPE

COMPLICATED BY DIABETES MELLITUS AND TERMINATING IN ACUTE MYELOID LEUKÆMIA

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THE very curious combination of an anæmia similar to pernicious anæmia in a patient with diabetes and terminating in acute myeloid leukæmia occurred in a man aged 59.

He first attended the out-patient department of Queen Mary's Hospital for the East End on Jan. 16th, 1935, complaining of shortness of breath on exertion with vague abdominal discomfort.

Past history.—Influenza, November, 1934.

On examination the patient was a stoutly built man, weighing 12 st. 6 lb. He had a pale, waxy colour, the conjunctivæ being slightly tinged with yellow. The heart was normal; blood pressure 136/84 mm. Hg; arteries soft. Tongue pale and moist. Abdomen protuberant; spleen not palpable. The nervous system was normal; all reflexes normal and no sensory changes. Pupils normal; discs pale, otherwise normal.

Sugar was present in the urine and the fasting blood-sugar was 226 mg. per 100 c.cm.

TREATMENT AND PROGRESS

TABLE OF BLOOD COUNTS

Date.	R.B.C. (mills.)	Normo-blasts (per 100 W.B.C.)	Megalo-blasts (per 100 W.B.C.)	Hb. %	C.I.	White blood-cells. Total.	Normal. Poly.	Normal. Lymph.	Normal. Mono.	Normal. Eosin.	Normal. Baso.	Abnormal. Myelo-cytes.	Abnormal. Myelo-blasts.	Poly-chromasia.	Aniso-cytosis and poikilo-cytosis.	Reticulo-cytes (%).
Jan. 16th	2·76	0	0	58	1·09	2,100	814	1,306	..	..	..	..	..	+ +	+	10
Feb. 8th	2·77	1	0	59	1·07	2,200	616	1,408	176	..	..	..	..	+	+	..
,, 19th	2·49	4	0	52	1·06	3,200	1,120	1,920	160	..	..	..	..	+	+	..
,, 22nd	2·6	3	0	56	1·08	2,400	864	1,296	240	..	..	..	..	+	+ +	..
,, 28th	2·36	4	3	52	1·1	2,400	336	1,584	456	..	24	..	..	+ +	+	..
Mar. 6th	2·64	10	11	55	1·06	3,800	760	2,888	152	..	..	..	..	+	+	3
,, 7th	2·91	12	14	56	0·97	3,000	540	2,280	180	..	..	..	..	Slight.	+	5
,, 9th	2·61	+ +	+ +	58	1·1	4,000	1,240	2,720	40	..	..	..	..	+	+	1·2
,, 28th	3·09	+ +	+ +	52	0·85	4,400	792	3,300	308	..	..	..	..	+	+	4
April 2nd	3·31	12	8	55	0·81	5,100	1,630	2,400	510	50	..	..	510	+	+	4·3
,, 16th	1·94	+ +	+ +	34	0·9	7,600	1,520	4,790	380	..	..	..	910	+	+	..
May 14th*	2·36	+	+	44	0·92	9,000	1,260	5,580	270	90	..	1,350	450	+	+	..
,, 20th	2·81	+ +	+ +	50	0·9	9,600	2,200	5,760	480	..	..	1,150	..	+	+	..
,, 26th	2·4	+ +	+ +	42	0·87	12,200	3,170	6,100	730	..	..	2,200	..	+	+	..
June 3rd	2·22	Few.	Few.	38	0·86	20,200	7,070	12,120	400	..	..	200	400	+	+	..
,, 7th	1·95	,,	,,	30	0·77	32,800	4,600	21,650	3,280	..	..	1,350	1,930	+	+	..
,, 12th*	2·07	..	..	36	0·9	25,600	..	..	..	..	..	..	..	..	..	..
,, 21st	1·72	0	0	32	0·94	60,000	9,000	15,000	1,200	..	..	34,800	..	+	+	..
,, 29th	1·73	2	0	20	0·6	368,000	36,800	11,040	3,700	11,040	..	202,400	103,000	+	+	..

* Following blood transfusion.

The Table gives the results of the blood examinations. On reference to Jan. 16th it will be seen that the blood count suggested a diagnosis of pernicious anæmia. This diagnosis with that of diabetes mellitus was made provisionally. The patient was admitted on Feb. 7th, 1935, and given a Lawrence 7-line diet. The blood count on Feb. 8th showed a very definite leucopenia with relative lymphocytosis. To our surprise a fractional test-meal on Feb. 12th showed a normal curve for free and total acidity. A glucose-tolerance test performed on Feb. 8th was as follows :—

Blood-sugar.		Urine. Sugar.	Urine. Acetone.
	Mg. per 100 c.cm.		
Fasting	190	Trace.	Trace.
After 50 g. glucose.	252	+ +	+
	300	+	+
	313	..	Trace.
	350	+ +	,,

This was a typical diabetic curve, and the patient was given an 8-line Lawrence diet and 5 units of insulin twice in the day. In view of the fractional test-meal of Feb. 12th we decided to repeat it on Feb. 21st, but the results failed to show achlorhydria.

It was decided that, in spite of the absence of achlorhydria, the patient should be treated as a case of pernicious anæmia and diabetes mellitus. He was given liver extract equivalent to half a pound of liver per day and a mixture containing iron and arsenic. The blood counts on Feb. 19th and 22nd showed no change. In the meantime the diabetic condition improved and the urine became sugar-free and a fasting blood-sugar was 191 mg. per 100 c.cm.

On Feb. 28th megaloblasts and normoblasts were found. Since there was no reaction to liver treatment he was given hog's stomach (1 drachm thrice a day) and intravenous Hepatex. The blood count on March 6th showed some response to treatment. The white cells increased and the reticulocytes were about 3 per cent. On March 7th the colour-index became below 1, and the red cells increased in number. Unfortunately the patient discharged himself on March 9th although the blood count was less satisfactory.

He attended the out-patient department and on April 2nd 10 per cent. myeloblasts were found with 4·3 per cent. reticulocytes. These findings suggested great stimulation of the myeloid tissue. In April his condition became worse and he was readmitted. On May 10th a blood transfusion of 600 c.cm. was given and the blood count on May 14th showed some improvement, the hæmoglobin rising from 34 per cent. to 44 per cent. On May 18th he was given injections of Campolon, 2 c.cm. daily, and on May 20th the blood count showed some improvement. The colour-index was now below 1, and the white cells were definitely increasing in number. On May 26th the red cells showed no change but the white cells were up to 12,000. On June 7th only a few nucleated reds were seen, but the white cells were now 32,800, including myelocytes and myeloblasts. On June 11th the white cells were reduced to 25,000, but on June 14th the patient developed large septic areas on the face and chin, and the spleen was found to be just palpable. A week later there was obviously no red response and the white cells showed an enormous increase to 60,000. The spleen continued to increase in size. On June 29th it was obvious that the patient's condition was hopeless. The number of white cells was 305,440 with 83 per cent. abnormals (myelocytes 55 per cent. and myeloblasts 28 per cent.). The patient died on July 3rd.

POST-MORTEM EXAMINATION

A complete autopsy was not obtainable, but the spleen and marrow were examined with the following results :—

Spleen.—Macroscopic appearances: About three times the normal size (500 g.). Grey and firm with thickened capsule. On section the pulp was firm and fairly homogeneous with general infiltration. The Malpighian bodies were indistinguishable and no infarcts were present.

Microscopic appearances: Malpighian bodies were few and widely separated. The sinuses were large and numerous, being engorged with all types of myeloid cells, myeloblasts preponderating. Myelocytes were also numerous and polymorphs and metamyelocytes were present in smaller numbers (hæmatoxylin and eosin, and Jenner). Considerable hyperplasia of the reticulo-endothelial elements were noted. Free iron was present in large amounts, especially towards the periphery and in the subcapsular area.

Bone-marrow was extracted from a rib. Great reduction in fat; red and cellular. Myelocytes and myeloblasts in enormous numbers. A few normoblasts were also to be seen.

COMMENTS

The interest of this case lies, first, in the presence initially of two diseases, diabetes mellitus, and what was thought might be pernicious anæmia—from the blood picture and clinical appearances; the former was rapidly brought under control. Secondly, the absence of achlorhydria made us question our first diagnosis of pernicious anæmia.

We regard this as being an exception to the rule in so far as the blood pictures up to the end of March, 1935, were those of pernicious anæmia. Wilkinson[1] reported 5 cases of pernicious anæmia out of a series of 208 in which free acid was present. Unfortunately in our case no halometer readings of the red cells were taken but they were definitely large. The fact that on the whole there was so little reaction to treatment with preparations of known efficiency suggests change to an aplastic state. This applies equally to blood transfusion.

The question arises as to whether the initial stages of this disease represented an aleukæmic phase of myelogenous leukæmia. In favour of this are the anæmia, the relative lymphocytosis, and the presence of free acid in the stomach. Against this, however, is the absence of enlarged glands, and of enlarged spleen except at the end of the illness. The spleen even then showed only a moderate increase in size and that when any aleukæmic stage had been passed. Moreover, the commonest variety of aleukæmic leukæmia is believed to be the lymphatic type (Pinkus[2]). Again, assuming the aleukæmia to represent a state of marrow exhaustion following over-stimulation, it is surprising that the terminal leucocytic reactions were so definite. Gradwohl states,[3] however, that aleukæmic conditions may be temporary or may change into manifest leukæmia.

The chief sign pointing to chronic myelogenous leukæmia—the enlarged spleen—was absent until the final stage, whereas this is usually the first finding that leads to a blood examination. The duration of the condition and early blood pictures rule out the condition as being an ordinary acute myelogenous leukæmia from the beginning. The final moderate splenic enlargement is in keeping with this condition.

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CLINICAL AND LABORATORY NOTES

ACUTE HÆMOLYTIC ANÆMIA OF LEDERER IN A CHILD

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This somewhat rare type of anæmia has been much discussed of late years and some have doubted whether it is a separate clinical entity. Lederer[1] first drew attention to a condition which he called "acute hæmolytic anæmia" in which there was definite evidence of blood destruction of unknown ætiology and a liability to a fatal issue in the absence of blood transfusion. Since then the subject has been extensively reviewed by O'Donoghue and Witts[2] and more recently by Parsons and Hawksley[3] who have discussed the condition as it occurs in children. Joules and Mastermann[4] and Lovibond[5] have recorded what they considered were additional cases. In all, approximately 50 cases of so-called acute hæmolytic anæmia have been noted. Lescher and Hubble (quoted by Parsons and Hawksley) and Janet Vaughan[6] suggest that the unexplained hæmolytic anæmias and acholuric jaundice all form part of a group having many features in common but varying from each other in the acuteness of onset, severity, and response to treatment. It is generally agreed and emphasised that detailed reporting of these cases is essential for their ultimate correct classification and grouping.

The patient, a boy of 7, had been quite well until April 21st, 1936, when his mother noticed that he had a "rash" on his knees and was rather pale. Next morning he fainted on the stairs when coming down for breakfast. He was put back to bed, and during the next forty-eight hours complained of headache, was irritable, and vomited frequently. He was delirious at times. His only previous

Date.	Hb %	R.B.C.	C.I.	Reticulocytes %.	Nucleated R.B.C.	W.B.C.	Polymorphs.	Lymphocytes.	Eosinophils.	Monocytes.	Myeloblasts.	Myelocytes.	Remarks.
April 26	28	1,120,000	1·3	—	Normoblasts 15;* megaloblasts 2·5.*	72,000	58·5	34·5	1·0	0·5	3·5	2·0	Anisocytosis, poikilocytosis, macrocytosis, and polychromasia pronounced. Marked auto-agglutination.
„ 28	—	950,000	—	43·5	—	41,000	—	—	—	—	—	—	Transfusion, April 29th, 16 oz. of citrated blood.
May 1	61	2,580,000	1·2	17·0	None seen.	6,200	64·0	32·0	2·0	1·0	1·0	—	Anisocytosis pronounced. No auto-agglutination.
„ 5	—	—	—	8·0	—	—	—	—	—	—	—	—	—
„ 12	84	3,330,000	1·2	2·0	None seen.	9,600	54·0	38·0	1·0	7·0	—	—	Anisocytosis marked.
„ 19	88	3,640,000	1·2	—	„	8,000	52·0	45·5	2·0	0·5	—	—	„ slight.
June 2	80	3,840,000	1·0	—	„	12,400	63·0	33·0	—	4·0	—	—	—
„ 30	85	3,950,000	1·0	1·0	„	11,000	57·0	40·0	—	3·0	—	—	—
Oct. 6	78	4,850,000	0·8	—	„	10,200	54·0	39·0	3·0	4·0	—	—	—

Hb = hæmoglobin. R.B.C. = red blood-cells. W.B.C. = white blood-cells. * per 100 leucocytes.

illness was uncomplicated measles when aged 4. He was admitted to Booth Hall Hospital on April 24th, 1936, with a provisional diagnosis of "meningitis." The temperature was 101·4° F., with pulse-rate 130 and respirations 26. He was well nourished but of café-au-lait colour, and his conjunctivæ had a subicteric tinge. Subcuticular mottling was present over the wrist, elbow, and knee-joints. There was no enlargement of lymph glands, liver, or spleen. The gums and fauces were pale and clean. The heart was regular, and there was a systolic bruit loudest basally but heard over the whole precordium. The patient was stuporose but when roused was noisily irritable. Apart from Kernig's sign no definite central nervous system abnormality was detected, and the cerebrospinal fluid was found to be normal.

An attempt by the clinicians to make a preliminary blood examination was abandoned owing to the rapid and obvious naked-eye auto-agglutination which occurred with each drop of blood. The auto-agglutination was typical, in that it disappeared at body temperature and reappeared in the cold; a blood count could only be carried out by warming the pipettes and the counting chambers. A blood count on April 26th gave the following result: red cells, 1,120,000; hæmoglobin, 28 per cent.; colour-index, 1·3; leucocytes, 72,000 (58 per cent. polymorphs and 34 per cent. lymphocytes). A diagnosis of acute hæmolytic anæmia was made. On April 28th the red cells had dropped to 950,000, and the patient was clinically worse. A transfusion of 16 oz. of citrated blood was given on the 29th. No other special treatment was given before or after the transfusion, and recovery was rapid and uncomplicated. The reticulocytes, which immediately before the transfusion formed 43·5 per cent. of the red cells, gradually dropped to 2 per cent., and the leucocytes decreased from 41,000 to 6000 in three days. The temperature which had ranged between 99° and 101·4° settled within six hours of the transfusion and remained normal.

In addition to the blood findings shown in the accompanying Table the following investigations were carried out on April 28th: van den Bergh—direct test weak delayed positive, indirect test positive; the serum contained one unit of bilirubin; blood culture negative; Wassermann reaction negative; fractional gastric analysis showed free HCl. The red cell fragility, estimated on washed red cells obtained from a vein, using the technique described by Whitby and Britton,[7] was within normal limits; hæmolysis commenced in 0·44 per cent. NaCl, and was complete in 0·34 per cent. A repeat of this test on Oct. 6th—i.e., five months later—gave the same reading.

Although there was nothing in the family history to suggest acholuric jaundice it was considered advisable to carry out blood examinations on the boy's parents. The mother, who had five healthy children, had a severe hypochromic anæmia (red cells 4,420,000 per c.mm.; Hb, 45 per cent. of normal; and colour-index, 0·5). She stated that she had been treated for syphilis for three years. The father had practically a normal blood count and picture. The red cell fragility test in each case, carried out by the technique referred to above, gave results within normal limits, and the Wassermann and van den Bergh reactions on both sera were negative.

For inclusion in this group of anæmias a case must have certain definite features—viz., an acute onset, clear evidence of hæmolysis, no evidence of bacterial infection, and signs of active blood regeneration. The salient features of the case recorded above are: (1) the very acute onset, (2) the pyrexia, (3) the rapidly progressive anæmia, (4) the evidence of hæmolysis as shown by the typical skin coloration and the positive van den Bergh reaction, (5) the high reticulocytosis and the presence of normoblasts and megaloblasts indicating active erythropoiesis, (6) the negative blood culture and absence of any discoverable form of infection, and (7) the complete arrest of the hæmolytic process by a single blood transfusion.

The diseases coming under consideration in the differential diagnosis are acute leukæmia, infective endocarditis, atypical pernicious anæmia, and acholuric jaundice. The various investigations and the progress of the case serve to eliminate the first three. The negative family and personal history, the absence of splenic enlargement, the normal red cell fragility, and the response to treatment tend to the exclusion of acholuric jaundice as a diagnosis. We conclude that the condition is an example of the acute hæmolytic anæmia of Lederer.

We wish to thank Dr. J. D'Ewart, medical superintendent of Booth Hall Hospital, for permission to publish this case.

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ACUTE PERFORATIVE APPENDICITIS IN AN INFANT OF TWENTY DAYS

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A PREMATURE (seven months) girl twin, aged 16 days, was admitted to the Cardiff Royal Infirmary on Jan. 15th, 1936, with a history of difficulty in taking the feeds for two days and vomiting for one day.

The baby had been fed on a milk mixture the exact composition of which was not ascertained. She was slightly jaundiced and very emaciated. Her weight was 2 lb. 15 oz., whereas at birth it had been 3 lb. 8 oz. After admission she was put on feeds of expressed human milk but her condition did not improve, and three days later she developed severe melæna. This was treated with horse serum and whole blood from another mother (the blood of the child's own mother was not available) but failed to respond. The general condition of the child grew gradually worse and she died on the day after the onset of the melæna. On no occasion did the rectal temperature rise above 98° F., and no abnormal physical signs were found in the abdomen.

At the post-mortem examination acute gangrenous appendicitis was found. The appendix was embedded in a mass of fibrinous adhesions. Its distal two-thirds was inflamed and its tip gangrenous and perforated. There was also general peritonitis. The lungs showed a patchy congestion suggestive of early broncho-pneumonia, but on microscopical examination there was hæmorrhage into the lung tissue and no inflammatory reaction. There were slight degenerative changes in the proximal convoluted tubules of the kidneys and some fatty degeneration of the liver. The other organs were normal.

Acute appendicitis under the age of three months is very rare. Marinan[1] records a case in a female of five months and gives a short survey of the literature. He quotes Fraser[2] who found but 3 infants under one year of age in a series of 500 consecutive cases and also Abt[3] who, in collecting the records of 70 cases in children under two years of age, found only 20 in infants under three months. Werthmann[4] describes the occurrence of acute appendicitis in a child of seven months and Coleman[5] records a case in an infant of five months. Rivarola[6] describes a case of hernial appendicitis occurring in a male aged forty-five days and similar cases are described by Pope[7] and Ham[8] at twenty-one and twelve days of age respectively. Kümmell[9] found acute appendicitis in an infant twenty-four hours old and Jackson[10] and Hill and Masson[11] record cases of prenatal appendicitis.

In the present case the melæna was a misleading feature which, with the absence of both physical signs in the abdomen and pyrexia, suggested, notwithstanding the age of the child, a possible diagnosis of melæna neonatorum. Further support for this diagnosis appeared to be afforded by the fact that the twin brother was admitted to hospital at the same time as his sister on account of a sudden hæmatemesis. Although the hæmatemesis did not recur and his condition seemed fairly good the brother suddenly collapsed and died five days after his sister. At autopsy extensive broncho-pneumonia was found and confirmed histologically. Thus it appears likely that the melæna in the one case and the hæmatemesis in the other were secondary phenomena associated with the toxæmia from which both the children were suffering.

I am much indebted to Dr. A. G. Watkins for permission to record this case and also for supplying me with the clinical history.

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MEDICAL SOCIETIES

SOCIETY OF MEDICAL OFFICERS OF HEALTH

FOR his presidential address to this society on Oct. 30th Dr. ERNEST WARD, being the first tuberculosis officer to hold this position, naturally took for his subject

Tuberculosis

It was, he said, his impression that his branch of the public health service was not more static than other branches of the service, but it was nevertheless high time to review achievements in the light of experience and to make such changes as may be indicated. Of the two problems with which they were faced, the smaller was the prevention of tuberculosis of bovine origin; 2000 to 2500 persons die annually from this form of tuberculosis and perhaps double that number are crippled or made seriously ill. The solution was easy, although there were serious difficulties in the way. Pending the detuberculisation of our dairy herds, this form of disease could be prevented by pasteurisation of the milk before delivery, or, where that was impossible, boiling the milk before use. Incidentally, these steps would also prevent abortus infection and the numerous epidemics (100 since 1903) traceable to milk.

The prevention of tuberculosis of human origin presented far greater, if not insuperable, difficulties. A statistical investigation by the L.C.C. disclosed that some 15 per cent. of cases of tuberculosis had been in contact with a known source of infection; Dr. Peter Edwards had given 25 per cent. While it could not perhaps be fairly argued that as high a percentage of the exposed as of the unexposed derived their infection from unknown sources, yet it was fair to conclude that only some 10 per cent. of patients are infected from a known source and 90 per cent. from unknown sources. It was difficult enough completely to prevent small-pox and diphtheria even though the great majority of cases were infected from known sources. It was, he thought, not too late to enlist the aid of the general practitioner, asking him to draw attention to a larger number of coughing or debilitated individuals in whom an infective tuberculosis might then be discovered or excluded by radiography. Another line of approach, said Dr. Ward, was through the investigation of contacts. Since the adoption of the dispensary system, attention had mainly been concentrated on the children of the affected household. They are the most accessible, they provide the easiest figures, and we have been obsessed too much with the idea that tuberculosis begins in childhood and that, therefore, the more meticulously we search the children and the more elaborate becomes our technique in that regard, the more possible victims we shall save by appropriate treatment. He did not think that such efforts necessarily prevented the development of tuberculosis even in those children some ten to twenty years later, and they certainly had no influence whatever on the more certain prevention of disease by the discovery of sources of infection. The attention of tuberculosis officers should be concentrated rather on the adults and adolescents of tuberculous households. Some 40 per cent. of these contacts would, he believed, submit to radiography, but only 10 per cent. to a complete investigation. Too much pressure to undergo investigation would make it more difficult to maintain observation both upon the household concerned and upon other households in the vicinity.

If a contact complained of nothing and the skiagram was negative, he might be declared, for the moment, free from tuberculosis. It did not, of course, follow that that person would always be free from tuberculosis. It would be quite impossible to radiograph the adult contact population every three months, every six months, or even annually, but it would be a great advance to secure the radiographic examination of the majority of adult contacts on one occasion, then to await a further examination until for some reason, however trivial, ill-health was suspected. Such steps as these would not suddenly eliminate tuberculosis, but they would be a definite advance. Prevention was infinitely more important than treatment and would be found easier to attain. Comparatively little could be done by attempting to prevent the development of disease in possibly infected individuals, much by controlling sources of infection. The ideal preventive measure which we all would welcome was preventive inoculation. Treatment and prevention by tuberculin injections in one form or another had been intermittently advocated and practised for fifty years, and we still awaited reasonable proof of its efficiency. A short-lived immunity had been obtained in cattle, but it was both uncertain and short-lived, and patients apparently cured by tuberculin might still die of tuberculosis.

The form of immunity to which most of us owed our lives was not acquired but congenital. Most of those with experience of tuberculosis would agree that some 75 per cent. of the population had a high resistance to the disease, 20 per cent. possessed a weaker resistance, and 5 per cent. were more or less vulnerable. It was from this last 5 per cent. that sanatoria and hospitals were mainly filled, though a certain number of the 20 per cent. might also suffer. What, Dr. Ward asked, is the difference between these groups? A practical answer to that question would be the greatest public health advance yet achieved. The disparity was probably due to some chemical difference between the groups, the presence in the immune of minute quantities of some substance. A store might be present at birth in the immune, but it was more likely that they possessed the power to manufacture it and that this power might be enhanced by the various outside influences which are known to assist the cure of tuberculosis, and diminished by conditions favourable to the development of the disease. The chemistry of immunity had not gone very far, but Dr. A. W. Downie had found that some mice could be immunised against pneumonia by partial antigens and some could not. In those not immunised the antigen was still present in the blood, in the immunised it had disappeared; there was a congenital difference in the ability to utilise antigen. Research on similar lines might ultimately give us the power both to influence profoundly susceptibility to infection and to treat successfully an infection already present.

Dr. Ward concluded his address with some remarks on treatment, orthodox and otherwise.

LIVERPOOL MEDICAL INSTITUTION

AT a meeting of this institution held on Oct. 15th, with Mr. G. C. E. SIMPSON, the president, in the chair, a paper on

Local and Splanchnic Anæsthesia in Gastric Surgery

was read by Mr. F. RONALD EDWARDS. For many years, he said, continental surgeons had performed gastric operations under local anæsthesia, but in this country serious attempts to utilise it had only recently been made. The advantages of its use were that shock was minimal and that operations could be performed on patients who were poor operative risks. The three conditions necessary for the complete anæsthesia of an abdominal field were: (1) complete narcosis, (2) absolute muscular relaxation, and (3) the interruption of sensory nerve stimuli passing from the viscera to the central nervous system—i.e., the operative field should be completely isolated. In the technique used by Finsterer of Vienna for gastric operations under local anæsthesia a novocain field block was produced, after which novocain was injected into the splanchnic plexus. Mr. Edwards had now used this type of analgesia in 46 cases of varying pathology and procedure. He had noted a fall of blood pressure after the splanchnic injection, due to vasodilatation, but found that the pressure then rose gradually until at the end of the operation it was normal again, indicating that shock was minimal. The pulse-rate usually remained the same throughout; the ward temperature and pulse charts usually showed little sign that operation had taken place, even though extensive gastrectomies had been performed. In the surgical treatment of hæmatemesis from gastric ulcer the mortality-rate of operation had been reduced to 17 per cent. when local and splanchnic anæsthesia was employed—a figure that compared favourably with a 63 per cent. mortality in cases treated medically (patients over 45). Respiratory complications were absent even though 14 patients in this series were over sixty years of age, and 6 over seventy. A slight tendency to the development of ileus was noted, but this condition responded to treatment. Mr. Edwards concluded that splanchnic anæsthesia was the anæsthetic of choice for gastric operations on debilitated patients, for hæmatemesis, and for operations on the aged. For routine anæsthesia it compared very favourably with inhalational anæsthesia, and he was now using it in all gastric cases.

Mr. C. ALEX. WELLS said he had adopted the method at the beginning of the year, and had employed it in some 35 cases. Most of these had had gastrectomy for gastric ulcer, duodenal ulcer, or hour-glass stomach. They included 3 cases of gastrojejunal ulcer, 1 of gastrojejunocolic fistula, cases of carcinoma of the stomach, and two or three gall-bladder cases, in one of which recovery would scarcely have been possible under any form of inhalational anæsthesia. The supplementary use of gas-and-oxygen could, he thought, be avoided in one of two ways. Either adrenaline solution (1 drop to 10 c.cm.) might be added to the novocain solution, or quinine and urea hydrochloride might be used with it. The latter course was, he thought, not without its dangers, for in 5 of his cases serious aseptic necrosis had developed in the abdominal wall after the injections of solutions containing quinine and urea hydrochloride, although these had been made up with double distilled water and prepared and sterilised with unusual care. Prof. W. J. Dilling was at present investigating the cause of the necrosis; the explanation might also throw light on the delayed union, with or without necrosis, that occasionally followed the use of local anæsthesia for other purposes. Recently, Mr. Wells said, he had been using Novutox, a proprietary product containing a small percentage of a quinine compound, and had had no trouble at all with this drug. He employed a 2 per cent. solution diluted to ¼ per cent. with sterile water, both for the abdominal wall and the deep splanchnic infiltration. For pre-medication he injected hyoscine gr. 1/100 with omnopon gr. 2/3, followed by omnopon gr. 1/3 if required. With this preparation the patient usually slept through the operation, but he found that amnesia was not so complete as that which Mr. Edwards had described, although his own dose of hyoscine (which was supposed to have the amnesic effect) was larger. The post-operative course had in general been very smooth and the ward sisters, who were generally reliable critics, had been favourably disposed towards this method of anæsthesia except during the black period when necrosis occurred. Chest complications were never serious, but in this respect he had been less fortunate than Mr. Edwards, since he commonly noted sharp exacerbation of a pre-existing bronchitis. There had been no single case of serious post-operative pneumonia. With all the solutions containing quinine compounds there seemed to be a tendency to a temperature rise of one or two points for a day or two after operation, but with the plain novocain solutions the temperature usually remained under 99° F. A tendency to ileus had been noted, but it always responded to injections of pituitrin, eserine, and acetylcholine. This complication did not seem to be any more troublesome than in cases operated upon under general anæsthesia.

Mr. J. B. OLDHAM, while agreeing that it was necessary to dull the consciousness of the patient, felt that the use of large doses of morphia and hyoscine to attain this end was dangerous; he preferred to give only a small dose of morphia and to administer oxygen and a minimal amount of nitrous oxide throughout the operation. The striking freedom from chest complications reported by Mr. Edwards was contrary to the general experience that there was little to choose between inhalational, spinal, or regional anæsthesia in preventing this post-operative worry.

Dr. C. ALSTON HUGHES said that just as abdominal surgeons were aiming at anæsthetising organs in the upper abdomen by infiltration of the splanchnic ganglia, ophthalmic surgeons in recent years had secured gratifying immobility and insensibility for intra-ocular operations by bathing the nerve junctions at the ciliary ganglia with local anæsthetic. No matter how inflamed and painful an eye might be, a retrobulbar injection of 1 c.cm. of 2 per cent. Planocain around the ciliary ganglion would, after a wait of full five minutes, allow without any pre-medication the commencement of a painless operation on a conscious patient's eye.

PATHOLOGICAL SOCIETY OF MANCHESTER

ON Oct. 14th Dr. T. H. OLIVER delivered his presidential address on the

Differentiation of the Glycosurias

Statistics, he said, showed that although insulin has increased the expectation of life of diabetes by some 3½ years, this improvement was confined to the younger patients. After the age of 55 the mortality remained the same as prior to 1922. Clinical experience also showed a considerable number of cases in which there had been little or no benefit from insulin; but this could not be expected to act in cases in which the glycosuria is not due to an islet deficiency. For accurate prognosis and treatment a much greater differentiation of the cases was necessary. Cases might be classified into: (1) Those in which there is an increased mobilisation of carbohydrates and fats from the storehouses: in this group the central nervous system, pituitary, and thyroid are the primary causes. (2) Those in which there is a defect in the islet tissue: in this group there is often a history of increased obesity immediately prior to the onset of the disease. (3) Those in which the primary defect is in the liver—cases associated with gout, cholecystitis, pernicious anæmia, and hæmochromatosis. (4) Those in which an unknown factor, which enables the muscles to utilise sugar, is missing.

This last group was commonly associated with arterio-sclerosis and in these patients hypoglycæmia after insulin was not produced by exercise; when it did occur it was due to over-storage. Here the renal threshold was often high and was probably a conservative process, as a high blood-sugar was necessary for such persons. It was essential therefore to differentiate between the optimum and the so-called normal blood-sugar level. Any attempt to reduce the blood-sugar to the region of 0·1 per cent. might make these patients ill and the results of treatment must be judged not by a laboratory ideal but by the clinical improvement attained.

REVIEWS AND NOTICES OF BOOKS

The Last Thirty Years in Public Health

By Sir ARTHUR NEWSHOLME, K.C.B., M.D., F.R.C.P. London: George Allen and Unwin Ltd. 1936. Pp. 410. 15*s*.

IN an earlier volume, reviewed in a leading article (1935, i., 997), Sir Arthur Newsholme brought the story of his life-work up to the year 1908, when from local administration he proceeded to Whitehall as head of the public health service. The present volume continues the account of his pilgrimage during the subsequent years. It is divided into three parts. The first deals with his experiences in central administration from 1908 to 1919—a period of unparalleled progress in British preventive medicine. It was in this period that, on Newsholme's initiative, anti-tuberculosis and maternity and child welfare activities, which had hitherto been carried on as isolated local efforts, became national health services stimulated from the centre by skilled guidance and by large Treasury subsidies. In 1916, on the appearance of the report of the Royal Commission on Venereal Diseases, Newsholme secured the prompt adoption of practically all the commission's recommendations, and within a few months the Local Government Board issued regulations imposing on local authorities the obligation of providing a complete and gratuitous system of treatment of venereal disease. This important public service, which alone would entitle the author to a permanent place in the history of preventive medicine, was effected by the remarkable strategy described on p. 157. Coming to Whitehall with many years' experience as a medical officer of health, Newsholme was in a unique position to compare the methods of local and central administration; and his discussion of the proper inter-relation of technical and administrative staffs is full of instruction to all who are concerned, whether at the centre or in local areas, with the governance of men.

In 1919, on his retirement from the public service, Newsholme was invited by Dr. W. H. Welch to give a course of lectures on public health administration in the new school of hygiene of the Johns Hopkins University. The next five years were spent chiefly in the United States, and the second part of the book is devoted to this period, which was one of extensive travelling and much public speaking. His reputation had long preceded him, and his counsel was widely sought. He met all the leading figures in American medicine and social work, and by his writings and oral teaching he exercised a profound influence on the development of public health in America. This part of the book, with its lucid account of the conditions and difficulties amid which health work is making remarkable progress in the United States, and of the outstanding personalities taking part in the work, is full of interest to health workers in whatever part of the world they may be engaged.

The third part is devoted to the increasing socialisation of medicine—a subject to which Newsholme had long given much thought, especially in preparing his evidence for the Poor Law Commission in 1908, and in his connexion with the tumultuous events following the introduction, three years later, of the National Insurance Bill. In 1929 he began an inquiry for the Milbank Memorial Fund into the relation of public and private medicine in many European countries, the results of which are embodied in four volumes that are indispensable to all seeking to ascertain the right position of the doctor in a modern community. The inquiry concluded with a tour in Russia in 1932 with Mr. J. A. Kingsbury, LL.D., then secretary of the Fund, and the publication in 1933 of a joint description of the health conditions observed during the tour in "Red Medicine," a book that has caused much controversy in America.

After a penetrating analysis of the problems of socialised medicine the present volume closes with an epilogue of confident optimism; and the reader as he draws to its end can but be thankful that the author has been spared to complete this record of devoted public service, extending long past the age when most men feel entitled to retire to a leisured *Lebensabend*. The book teaches much about health and social welfare. But that is not all. From it can also be learnt how great a thing a man may make of his life.

Practitioners' Library of Medicine and Surgery

Vol. X. *Dermatology and Syphilology.* Editor: George Blumer, M.D., David P. Smith Clinical Professor of Medicine, Yale University, School of Medicine. Associate Editor: C. Guy Lane, M.D., Instructor in Dermatology and Syphilology, Harvard Medical School. London: D. Appleton-Century Co. 1936. Pp. 1043. In sets only. £2 10*s.* per volume.

Thirteen contributors have made themselves responsible for this section of the Practitioners' Library, which cannot be purchased separately. It deals in 12 chapters with the dermatoses proper and a thirteenth one of about 200 pages is devoted to syphilis in its osseous, vascular, neural, and congenital forms.

The first chapter is of a general nature; pathology, diagnosis, and treatment are surveyed and much information is tabulated in columns—a method of presentation which may aid the lecturer but throws a heavy strain upon the learner's memory. An example is the table of "distribution by sites" (p. 45), containing no less than three and a half pages of double column tables of (*a*) the common and (*b*) the less common dermatological conditions in the various regions. A reference to the technique of "tissue biopsy" to p. 56 (given on p. 58) is apparently erroneous, for no such description can there be found. On pp. 60–61 is an alphabetical list of the various drugs given per os for the relief of cutaneous disease; it is followed by those given intravenously, subcutaneously, and intramuscularly. No distinction is made between dermatitis and eczema, except that the former is regarded as being due to an external cause or causes, and subsides when the cause is removed. Some 50 pages are devoted to a discussion of the various forms and causes of dermatitis, such as light, heat, cold, X rays, and so forth, and the increasingly numerous types of drug eruptions, externally applied. A table of percentage concentrations with which no reaction is obtained in the *normal* skin will be found of value (p. 335), when patch tests are undertaken. The various plants in the U.S.A. which may give rise to dermatitis in susceptible persons are tabulated in alphabetical order. To the experienced observer it would seem that in course of time the list may be indefinitely extended and that there is hardly a plant which is not potentially capable of exciting epidermic reaction in the susceptible person.

The concluding section on the Wassermann-fast patient is noteworthy. A study of this section reveals the highly complex problems which are involved and seems to establish the claims of those who favour *continuous* as opposed to intermittent or lapsing treatment of the disease in its early stages. Questions on the supervention of neurosyphilis at a later date and the all-important problem of marriage are discussed in detail, and the arguments will put the practitioner in possession of enough information to enable him to understand the difficulties, and to form a judgment in most of the perplexing contingencies that may arise.

Throughout the volume there is a generous allocation of half-tone illustrations, diagrammatic and from photographs. Its value as a text-book is questionable, but as a work of reference, forming an integral part of a series of volumes dealing rather in the manner of an encyclopædia with the whole subject of medicine, it will be welcomed.

Microscopische Methoden in der Microchemie

By Ludwig Kofler, Dr. Phil. et Med., Professor and Director of the Pharmacognostic Institute of the University of Innsbruck; and Adelheid Kofler, Dr. Phil. et Med., Innsbruck. With the collaboration of Adolf Mayrhofer, Dr. Phil., Assistant Professor of Pharmacognosy, University of Vienna. Vienna and Leipzig: Emil Haim and Co. 1936. Pp. 134. R.M.9.

The use of the microscope in chemical analysis was introduced by Behrens of Delft in 1880. His studies of crystal structure, and descriptions of crystal tests observable under the microscope for different chemical radicles were the beginning of much fruitful work. The name of the late Prof. Emich of Graz was for many years almost synonymous with the development of qualitative microchemical analysis; and the authors of this monograph follow in a distinguished line of Austrian chemists who have been chiefly responsible for the introduction of new procedures in micro-analysis.

The monograph is one of a series in the general field of microchemistry. It presents certain of the more precise methods which have been worked out in recent years for the separation and characterisation of small amounts of chemical substances. These methods make it possible to carry out the necessary manipulations on a small scale without any loss of accuracy, and should prove increasingly attractive to the modern biochemist who is frequently under the necessity of examining biological material in very small amounts. The first two sections of the book by L. Kofler contain full accounts of the development of the technique of the micro-melting point estimation and of micro-sublimation, the latter a method of separation and purification which deserves a far more extended use than it at present enjoys. The apparatus for both procedures is fully described in the text and by photographs. A specially constructed hot stage attachment allowing of accurate temperature control is used for the micro-melting point. Several types of apparatus which operate in vacuo or at ordinary pressures serve for the sublimation methods. An excellent series of photographic plates is reproduced giving the actual appearances (under the microscope) of several substances during the course of melting, losing water of crystallisation, changing crystal structure, and of sublimation. The illustrative examples given are of substances of biochemical interest—e.g., salicylic acid, morphine, veronal, acetanalide.

The third section by A. Kofler deals with the more specialised technique of crystallographic identification of substances, a method of investigation which has been highly developed for minerals, but has been comparatively little explored in the case of organic chemicals of biological interest. Inasmuch as most of the available descriptions of the morphology of crystals and instructions for the use of the polarising microscope are given in text-books of mineralogy, the present account should prove particularly useful to biochemists and pharmacologists, for the examples used are substances with which they are accustomed to deal. A special section, by A. Mayrhofer, deals with the subject of immersion fluids for estimation of refractive indices.

Altogether a most useful monograph.

Arthritis and Rheumatic Disease

By MAURICE F. LAUTMAN, M.D., Director of the *Department for the Study of Arthritis*, Levi Memorial Hospital, Hot Springs, Arkansas. London: McGraw Hill Publishing Co., Ltd. 1936. Pp. 177. 10s.

THIS book is designed to supply the patient rather than his doctor with a clear account of what is known of arthritis and rheumatic disease, and succeeds admirably in its purpose. The instruction of the general public is regarded in America as an important factor in the campaign against these diseases which are becoming more common and levy a serious toll upon the working capacity of the community. The American Committee for the Control of Rheumatism which has already done important work in this direction and Dr. Lautman's book will greatly assist their efforts. Nothing of importance appears to have escaped notice, and the account of the various forms of arthritis and fibrositis is remarkably clear and complete. The author described the causes so far as they are known, the pre-arthritic state, the symptoms, and gives valuable advice upon the general principles of treatment apart from drugs. Possibly his views upon diet may not meet with universal approval, but they are sane and practical on the whole. As Dr. Morris Fishbein says in his introduction, "Knowledge such as he provides in this book will save thousands of dollars for those who are constantly seeking quick cures," a statement with which one cannot disagree. Whether it will bring them encouragement, or give them positive help in their struggle against disease is a question on which there may be two opinions. At any rate it will be found well worth careful study by doctors for the sound practical advice it supplies upon the management of diseases which form so large a proportion of the cases treated in general practice.

The Intruder: An Unfinished Self-Portrait

By KENNETH WALKER. London: Lovat Dickson Ltd. 1936. Pp. 274. 9s.

IN this absorbing narrative the author sets out how he gradually came to the conviction that his life runs him and that he does not run his life. He has no patience with current psychology and its puppets, the ego, the super-ego, and the id: he prefers to interpret his own behaviour in terms of creatures of his own whom he calls Black Hawk (the Indian brave), Selous (the hunter), Knight Paton (a combination of a Crusader and the Scottish medical missionary), and the Personage (a figure of greatness). These four he has traced in the tangled skein of his experience, and they accompany him and play their several parts in the whole story. They are patterns into which he has organised his experience—to use the language of Mr. A. W. Wolters in a recent address to the British Association. And there is yet another creature whom the author describes as the Intruder, at whose appearance the other actors slink off into the wings. And there is also the author of the book, who writes a preface telling how he came to illustrate certain fundamental truths in his own person. "I am my own rabbit," as he puts it. But whereas Mr. Wolters spoke of a person forming his own patterns of experience the author's life has been at the mercy of his four characters; he has not lived, he has been lived. Whoever lived it the author's life was so full of a number of things that a time was bound to come when it would feel empty if the tempo remained the same. After touring Iceland on a pony with the French pretender, descending the Zinal Rothorn by a new route in an electric storm, meeting a lion in the Rift valley, being entertained by a Maharajah, crossing the Parana in a native canoe, and only just failing to get a Brazilian degree, even the war had little to offer in variety except the risk of a court martial for declining the O.B.E. Success as a consulting surgeon did nothing to resolve the doubts and problems that stirred in his mind and the narrative ends with the second of two moments of self-revelation which both occurred near the same spot on the South Downs. The first was when, a little boy sitting in a victoria returning with his parents from an afternoon's outing, he had an acute feeling of existence and was frightened by the new sense of isolation. On the second occasion he saw the thread of his life twisting through time and space and at long last returning to the point of its departure. Thus slowly and painfully he came to understand that there is a knowledge, universal and timeless, handed down by word of mouth from teacher to disciple, which awaits those who seek it. Differing from the inert learning of scholars this knowledge has power to change him who possesses it. Or so at any rate thinks one of the characters in the book—perhaps this time the author himself.

Administrative Science for Hospitals and Institutions

By A. MILSOM. Published by the author and obtainable from the Book Department, 104, Foord-road, Folkestone, Kent. Pp. 550. 17s. 6d.

Mr. Milsom, who describes himself on the title-page as (amongst other things) master of London, Bristol, and other provincial local government establishments, has put together under one cover a series of guides to the various activities and responsibilities which fall on the shoulders of the modern hospital administrator. The author shows a remarkable grasp of detail, without losing perspective. Whether he is talking on the wise management of a staff of employees, the destruction of insect pests, catering, contract buying, accountancy, laundry, works departments, the management of a farm and garden, including the proper care of a farrowing sow, or the inauguration of an occupational therapy department, his interest never flags and he does not allow that of his readers to flag either. He assembles facts and deduces opinions based on them and on the views of accepted authorities.

Much of his book is concerned with hospital management under the control of a supervising authority, such as a county council, but it contains information of value to those responsible for the administration of any hospital—the governing body, the superintendent or secretary, the chief accountant, and the matron. The book is arranged in such a way that each department is an index to itself. The separate sections are interleaved with advertisements, and there is also an index to advertisers. It is a book which all those concerned with hospital management would do well to have within reach.

THE LANCET

LONDON: SATURDAY, NOVEMBER 7, 1936

THE ÆTIOLOGY OF ACUTE RHEUMATISM

The study of rheumatic fever from the ætiological standpoint has passed through several phases, some of which need no longer be considered. Streptococci of some sort have always figured in the picture, but it is now abundantly clear that, in so far as any streptococcus is concerned in causing this disease, that organism is *Streptococcus pyogenes*. This confident opinion of course rests on foundations other than the constant presence of the organism in the throat during, or more often before, an attack; the principal evidence for it has been the demonstration that specific antibodies are developed during the attack. The development of antihæmolysin was first observed by E. W. Todd; the antibody now known as antistreptolysin was demonstrated by Geoffrey Hadfield; and each of these observations has since been amply confirmed. The two substances can both be titrated with some accuracy, and the quantity in which they appear in the serum of rheumatic fever cases is unequivocal.

A third observation of the same nature was reported last year by Bernard Schlesinger, A. G. Signy, and W. W. Payne,[1] who found that precipitins acting on extracts of *S. pyogenes* were formed in the blood of rheumatic patients after attacks of tonsillitis, their development coinciding with the occurrence of a rheumatic relapse. These workers were however not satisfied that the changes in which streptococci so clearly participate are wholly accountable for the disease, and with the help of C. Russell Amies, Schlesinger, and Signy performed experiments in which it was claimed[2] that a virus was demonstrated. Centrifugation of pericardial fluid furnished a deposit containing minute particles which were agglutinated by the serum of patients recovering from attacks of rheumatic fever, and not by normal serum, or indeed by rheumatic subjects in a quiescent stage. This was a bold claim, and it has not yet been confirmed. No recognised virus has hitherto been first brought to light by direct microscopic observation, or accepted on serological grounds alone without the conclusive evidence afforded by transmission of the disease. Yet only those experienced in ultramicroscopy are really qualified to criticise these findings, at least as far as they concern matters of fact rather than of interpretation.

Meanwhile Dr. A. F. Coburn has returned to the attack on behalf of the claims of the streptococcus, and in our last issue he reported the results of serological studies in rheumatic cases which differ from their predecessors in their greater accuracy and detail. In a necessarily small series of cases he has repeatedly estimated the quantity of several antibodies in the blood at intervals after an attack of streptococcal pharyngitis in both rheumatic and non-rheumatic subjects, with the effect of showing that the type of response differs in these two types of case. The principal difference is that whereas in uncomplicated recovery antistreptolysin is produced rapidly, in the rheumatic the titre of this antibody rises slowly but steadily, and continues to rise after the appearance of an attack of acute rheumatism, this itself having occurred a fortnight after the original throat infection. This evidence very strongly suggests that rheumatic fever is an abnormal and exceptional type of response to streptococcal infection; it certainly proves, as Coburn expresses it, that the rheumatic subject "handles the products of hæmolytic streptococcus in a peculiar way." Will the intensive study of a known micro-organism and of the body's response to infection by it lay bare the ultimate secrets of this disease, or is there a missing factor, perhaps to be identified with the virus already described? These two beliefs and methods of approach—the exploitation of the known and the exploration of the unknown—are so typical of modern work in many other directions that final judgment on either side would carry with it implications of wide interest.

"IDIOPATHIC" EPILEPSY

Is there an idiopathic epilepsy? Or should we expunge this term from our dictionaries and regard all epilepsies as symptomatic? Certainly many French authors regard idiopathic epilepsy as dead and buried. They are willing to speak of toxic epilepsy and psychogenic epilepsy, but in their view most epilepsies are due to local organic brain disease, usually of an inflammatory nature. At the other end of the scale stand those who emphasise the existence of an inherited tendency to convulsions—a tendency that makes some people especially liable to develop fits if their brain is damaged, for example, by cerebral trauma, meningo-encephalitis, or tumour. Nobody knows the nature of this inheritance of a lowered threshold for convulsions; but obviously the stronger the inheritance the smaller will be the cerebral disturbance necessary to determine fits. If inheritance strength is measured in terms of familial incidence, there is a certain amount of evidence to support this proposition. And if the proposition is true, the term "idiopathic epilepsy," so far from disappearing, has its scope widened to include much of what we now regard as symptomatic epilepsy.

The search for abnormal conditions in the brain that might account for fits is an old one. For many years sclerosis of the cornea ammonis held a prominent place, but whether as a cause or result of fits was disputed. Dr. Fremont Bateman of Cincinnati now comes forward with a record of changes in the brains of 176 out of 178 patients who had had convulsions.[1] In 34 of these a clinical diagnosis of symptomatic epilepsy had been made, and was substantiated after death. These were mostly cases of acute or chronic inflammatory disease. The remaining 142 cases, all diagnosed as idiopathic epilepsy, he divides into two groups. The first group of 66 patients started to have fits before or near the age of puberty, taken as twelve years; the remaining 76 cases started at or after puberty. Dr. Bateman observes a striking difference in the findings in the two groups. In almost all the first group there was want of proper development of the frontal lobe. The convolutions were narrow, the fissures wide and deep. The subcortical structures were underdeveloped, but there was no compensatory dilatation of the ventricles. This condition he calls cerebral frontal agenesis, and he regards it as the cause of lowered fit threshold. It is an imperfect development, not an atrophy, of the newest part of the brain, and indeed the limitation of the condition to the frontal lobe shows that it is not due to general intracranial pressure. Moreover, atrophy is not a cause of diminished fit threshold; if it were, epilepsy would be a common accompaniment of senile dementia. In the second group of cases, also clinically diagnosed as idiopathic, whose epilepsy started at or after puberty, this frontal agenesis was rarely found, and was indeed less common than in the average run of brains in psychotic patients. The pathological conditions in this group were mainly in the cerebro-spinal fluid and vascular systems and included abnormalities in the ventricles, meninges, pacchionian bodies, and blood-vessels, "venous engorgement" being one of the most common. Some of these abnormalities were due to defect of development, but most of them were the result of inflammation, and Dr. Bateman does not claim that they were sufficient in themselves to cause convulsions.

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[1] The Lancet, 1935, i., 1090.
[2] Ibid., p. 1145.

If these observations are correct, most of the cases of "idiopathic" epilepsy starting before the age of twelve are associated with frontal agenesis; whereas, cases whose fits start after the age of twelve very rarely show the condition. Two desiderata at once occur to us. The first is confirmation of Dr. Bateman's findings by independent observers; the second is a search for points of difference between the groups as regards frequency and type of the attacks, limitation or deterioration in intelligence, temperamental defects, and, above all, the incidence of epilepsy in the family.

THE NOBEL PRIZE

At the beginning of August "A London Surgeon" sketched for us an amusing contrast between the research worker and his more practical colleagues, strongly reminiscent of the parable of the talents. It was not flattering to the research worker. This week, those who have made the laboratory their chosen field may take up their stewardship with renewed courage, for two of their number, Sir Henry Dale and Prof. Otto Loewi of Graz, share the Nobel Prize for 1936, the highest international honour bestowed for advancing medicine and its allied sciences. Although strictly speaking this award is for work done during the year, its division shows clearly that the donors have interpreted their duty wisely and with justice, taking into account the initial as well as the recent steps in one of the outstanding investigations of recent years. From 1921 to 1926, Loewi and his colleagues performed a beautiful series of experiments on the frog heart showing that nerve impulses in the vagus gave rise to a chemical substance, probably acetylcholine, which was itself capable of slowing the heart. The simplicity of the first experiment was startling. A denervated heart was perfused with fluid from an innervated heart, and the vagus nerve of the latter stimulated. Both hearts were depressed. When vagal effects were eliminated by atropine, stimulation of sympathetic fibres quickened both hearts. Loewi then postulated his well-known Vagusstoff and Acceleransstoff, suddenly bringing into practical politics the transmission of nervous excitation by chemical substances, hitherto almost an armchair speculation. Subsequent work made it clear that Vagusstoff was a choline ester, and Loewi actually showed that its chemical and physiological properties were similar to those of acetylcholine, though the final proof of its identity with this substance eluded him.

For many years before this Dale had been interested in acetylcholine, then regarded as a drug with peculiarly potent actions. In his laboratory it was first isolated from biological material in 1914, and from mammalian tissues in 1929; on the first occasion he suggested that it might be of physiological importance, though impossible at that time to track down because of its rapid destruction in the body. We are now familiar with the tissue enzyme, cholinesterase, which breaks down acetylcholine, and with eserine and related drugs which poison the enzyme and allow us to study the actions and natural occurrence of acetylcholine. The story is too long to be told here, but to the precise methods and clear vision of Sir Henry Dale and his colleagues during the last three or four years we owe the greater part of our knowledge of this subject. Acetylcholine has been shown to transmit not only vagal effects to the heart muscle but excitation from all parasympathetic, and from some sympathetic, nerve-endings to the corresponding effector organs. It is also concerned in the transmission of excitation across all autonomic synapses, whether sympathetic or parasympathetic. Synaptic transmission at once suggests the central nervous system; we recall the "humoral theory" of reflex action put forward some years ago by the Oxford school, and ask if we are on the verge of understanding the nature of central nervous activity. Dale's work during the last year has, however, been directed towards that section of the periphery which had previously defied all efforts to bring it into line: mammalian voluntary muscle.[1] Here we return to the simple experiment—simple, that is to say, in conception. Acetylcholine had failed to act on normal voluntary muscle because it had never been in sufficiently intimate contact with it. Introducing it rapidly into the artery of a muscle, previously converted into an end-artery, made the muscle twitch with a force equal to that evoked by nerve stimulation and with a speed nearly as fast. This almost certainly means that motor nerves activate voluntary muscle through the medium of acetylcholine, for there is much independent corroborative evidence that this substance is produced during normal contraction. Humoral transmission is, therefore, not to be regarded as a comparatively sluggish process, confined to the autonomic system. We must now reckon with the possibility that it is an essential part of the fastest reactions. Where these new conceptions are leading we cannot say, but they are of fundamental importance and have already given promise of making possible the rational treatment of one nervous disease.

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[1] Cerebral Frontal Agenesis in Association with Epilepsy, Arch. Neurol. and Psychiat., Sept., 1936, p. 578.

[1] See THE LANCET, Oct. 24th, 1936, p. 991.

In a short account like this it is impossible to do justice to the work either of Prof. Loewi or Sir Henry Dale, and we have been unable even to mention that of numerous others—notably Prof. W. B. Cannon of Harvard—who have worked along the same or parallel lines. All who have followed the developments in this field during recent years will agree, however, that no better award of the Nobel Prize could have been made, and that no reward could be better deserved.

A BROADSHEET ON HOSPITALS

The hospital system of Great Britain, with all its complexities and ramifications, is described in a clearly written broadsheet (No. 84) recently issued by the independent non-party organisation known as PEP (Political and Economic Planning).[1] This organisation, which is not run for profit, issues factual statements and reports with a view to furthering the growth of a more scientific and objective attitude towards British public affairs. Groups of specialists, we are informed, working voluntarily in their spare time contribute the necessary information and criticism to make each broadsheet or report accurate and authoritative. Certainly this one has become so. After a preliminary exposition of the changing rôle of hospitals the convergence between hospitals controlled by local authorities and those which are independent charitable corporations is noted, and the weak point of the joint structure being built up is indicated—namely, the encroachment on the province of the general practitioner. It is explained that the interests of the public health demand that the general practitioner shall be a strong and effective partner in the service; and a new and more satisfactory balance is envisaged for the time when he is equipped and enabled to shoulder a greater share of the burden now borne by out-patient departments. The ground having been cleared, the reader is informed of the channels through which people enter hospitals of different types; the scope of the thousand voluntary hospitals in Great Britain; the development of contributory schemes without, as was once feared, a drop in subscriptions; and the efforts now being made at coöperation and exchange of experience. There follows an exposition of the new type of public hospital and its relations with patients and doctors; a statement of the pros and cons of the two systems and a demonstration of the ways in which the distinction between them is becoming blurred. In many ways, for example in carrying out statutory venereal disease services for local authorities, voluntary hospitals "have become in the last ten years purveyors of services in return for payments rather than distributors of charity"; while many more public hospitals than formerly are now open to students and many local authorities have appointed consultants and specialists, though not often, as is here suggested, "as honorary members of their staff." Finally, reference is made to local schemes of coöperation—as in London, Manchester, Cambridge, and Aberdeenshire—to the success of the Highlands and Islands Medical Service, to recent official and unofficial reports, and to the proposed Oxford and District Joint Hospitals Board, which is of special interest in view of Lord Nuffield's recent gift.

This broadsheet has well fulfilled its purpose, and will be useful not only to the intelligent layman for whom it has been prepared but to medical men who are alive to hospital problems but seldom see them presented with such cogency and impartiality.

HEALTH AND COMFORT IN HOUSING

A committee representative of many important bodies has been established to serve as a link between the building industry and organisations concerned with research bearing on health and comfort in housing. One of its functions will be to keep the Health Section of the League of Nations in touch with current practice and opinion in this country. Apart from this it will endeavour to coördinate, interpret, and present the results of technical and medical research in such a way as to make these results conveniently available to practising architects, engineers, the building industry, and local health authorities, and will arrange for investigation of hygienic problems raised by the industry. Among other activities a survey is being undertaken of papers at present accessible only in official and technical publications with a view to giving some of them wider publicity, and the help of librarians is sought in the selection of papers suitable for transmission to the committee. Communications may be addressed to the secretary at the London School of Hygiene and Tropical Medicine, Keppel-street, W.C.1.

The Army Medical Library in Washington, D.C., generally known as the library of the Surgeon General's office, is celebrating on Nov. 16th, at 8 P.M., the centenary of what is now the largest collection of medical writings in the world, containing as it does more than a million items. Sir Humphry Rolleston will deliver an oration dealing with its history and with the personalities of Billings, Fletcher, and Garrison.

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[1] The Hospital System. Broadsheet No. 84. Issued by PEP, 16, Queen Anne's-gate, London, S.W.1.

ANNOTATIONS

CHILD MORTALITY FROM SCALDS AND BURNS

A SERIES of statistical studies on the fatal accidents of childhood is being made by W. M. Gafafer, senior statistician of the United States public health service. His third and latest report[1] deals with mortality from accidental burns, and shows the trend of the deaths between 1925 and 1932. In the earlier year there were 3365 such deaths at ages under fifteen in the registration area; in 1932 there were only 2128, representing a fall of rather more than a third in the seven years. The great majority of these deaths were in children between one and five years of age, for in this age-group there were 2208 in 1925 and 1350 in 1932, a decline of nearly 40 per cent. Part of this improvement—but no more than a small part—may be due to the fact that there were actually fewer children in the population of 1932 than there were in that of 1925; death-rates are required for a proper assessment. For such rates population estimates are necessary and Gafafer says these are lacking. In England, however, with the help of the Registrar-General's returns and his estimates of the numbers of persons at each age we can determine the trend of the rate and see whether there is any such improvement as Gafafer reports for the United States. In fact there has been a very striking improvement. In 1933–34 the number of deaths from burns and scalds between the ages of one and five averaged 400 per annum, giving a rate of 170 per million children living at these ages. The corresponding rate was 216 in 1926–32, 273 in 1920–25, and 360 in the years immediately preceding the war, 1911–14. In the space of twenty years the death-rate has been more than halved. Clearly various factors may have contributed to these happy circumstances. The Registrar-General finds in them "gratifying evidence of the increasing care taken of child life as its abundance diminishes"; the diminishing size of family may well enable that extra care to be given. More effective methods in the treatment of severe burns have no doubt also played their part.

It was gloomily concluded by Dr. Watts of Glasgow, famous for his study of the "chincough" and of the causes of death in childhood early in the nineteenth century, that if we deprive Death of some of his weapons he promptly retaliates by sharpening up others or introducing new ones. With the deaths from violence in childhood there seems, unfortunately, more than an element of truth in this dictum. While the deaths from burns have declined so largely, as shown above, those from other forms of violence have been significantly increasing. In 1920–25 the rate from these other causes at ages 1–5 was 220 per million; in 1926–32 it had risen to 263, and in 1933–34 to 265. The fatalities of the road are, of course, the explanation. We can hope for no remarkable improvement in the total death-rate from accidents in childhood while this trend prevails in an important section of it.

OXYGEN FOR THE NEW-BORN BABY

THE usefulness of carbon dioxide as a respiratory stimulant for the newly born has somewhat obscured the fact that an adequate supply of oxygen is of relatively greater importance for saving life. Writing *on anoxæmia in the premature infant*, Buffum[2] brings forward certain points that really apply to all new-born babies. He points out that a moderate anoxæmia does not always show itself in visible cyanosis because the amount of blood in the superficial capillaries may be too small to give a cyanotic tint. Thus the baby suffering from so-called white asphyxia may be in much more urgent need of oxygen than a baby with blue asphyxia, although in the latter the cyanotic tint is easily seen. Likewise the damage done by anoxæmia is not always obvious, and it may well be that many of the lesions attributed to "birth trauma" are in fact the result of oxygen starvation of essential nerve-cells. Buffum's main thesis is that oxygen should be available and used continuously for the premature baby without waiting for the development of urgent symptoms, and he describes his experiences with small oxygen chambers in which premature babies in poor condition are placed as soon as possible after birth, being kept there until strong enough to obtain an adequate supply of oxygen by the inspiration of ordinary air. Some experts maintain that, used in this way, oxygen not only saves premature babies from death in the early days of life, but definitely promotes their nutrition and possibly, as indicated above, has an important effect upon eventual prognosis. Such special oxygen incubators are not always available, but oxygen given continuously through a closely fitting rubber mask for limited periods may be used as long as the gas is obtainable. The ease with which carbon dioxide can be given from the small metal bulbs now sold raises the question whether something similar cannot be done with oxygen or with O_2 and CO_2 mixtures. The time factor is of importance and it might be wise for all those undertaking midwifery to carry a small oxygen cylinder of the usual type, just as shortly they may have to carry a cylinder of nitrous oxide for analgesia.

CHRONIC ULCERATIVE COLITIS

THE discussion on ulcerative colitis, reported in our columns last week (p. 1040), did little to discover the essential cause of this terrible disease. Some of the cases seen in this country have suffered from dysentery in the tropics, more commonly the amœbic form, which tends to be chronic, than the bacillary form. That bacillary dysentery may be followed by a chronic form of ulcerative colitis is the conviction of French clinicians who had great opportunities of observing this sequence after the late war; and quite recently evidence of ulcerative colitis, on X ray or sigmoidoscopic examination, has been found[1] in 13 of 122 cases of bacillary dysentery carefully followed up after the epidemic of 1934 in Jersey City, N.J. English observers have not been struck by the sequence, and Manson-Bahr is not alone in doubting[2] whether the ulcerative colitis observed here has any association with dysentery. Various other organisms have been regarded as responsible. Dr. J. A. Bargen told the Royal Society of Medicine that he had been able to isolate from the rectal lesions a characteristic diplo-streptococcus in 80 per cent. of cases of the disease, and he related some experimental work in confirmation of the pathogenic nature of this organism. Unfortunately the same coccus has been found in the stools of persons not suffering from colitis, and the good results claimed by Bargen with a serum or vaccine made from this organism have not been obtained by others. Occasionally ulcerative colitis may be of toxic origin, as when it occurs in uræmia or mercury poisoning. Apart from this the chronic disease of temperate climates can plausibly be regarded as a specific disease, the cause of which has so far escaped detection. It is however in many instances allied to allergic phenomena. As a result of allergic or nervous influence the contractions of the colon become spasmodic, resulting in the ordinary irritable colon; with increased stimuli the mucous secretion is also increased. Remissions occur and are followed by relapses in which at last the stimulus itself or a secondary infection gives rise to actual ulceration of the mucous membrane. At this stage almost any organisms present in the bowel may infect the ulcers and lead to further destruction of tissue.

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[1] U.S. Pub. Health Rep., Sept. 13th, 1936.

[2] Buffum, W. P.: New Eng. Jour. Med., 1936, ccxv., 390.

[1] Felsen, J., and Gorenberg, H.: Amer. Jour. Med. Sci., October, 1936, p. 553.

[2] Manson-Bahr, P. H.: Lettsomian Lectures, THE LANCET, 1936, i., 832.

When so little is known of the nature of the disease treatment can only be directed towards raising the patient's resistance and protecting the damaged tissue from insults from without. Diet should be full and wholesome, with adequate vitamin content, while leaving little residue. Owing to the flux of mucus there may be excessive loss of calcium which must be replaced; the secondary anæmia requires hæmatinics. Local treatment is difficult. In most cases simple cleansing of the bowel with normal saline is all that should be attempted. Surgical measures, such as appendicostomy or ileostomy, may be desirable to give temporary relief to the bowel and permit of more efficient washing of the colon. Colectomy has been abandoned as a means of treatment; it is not possible to remove the whole source of the trouble. In the milder cases medical treatment is best. With prolonged care, rest, and freedom from worries, remissions of long standing often occur and the disease is sometimes arrested.

SPES PHTHISICA

UMCKOLOABO, "infallible" remedy for tuberculosis, was the chief example selected by Capt. G. S. Elliston, M.P., last March when he commended the Medicines and Surgical Appliances (Advertisement) Bill to the House of Commons. Curiously misrepresented as a cunning device to bolster up the monopoly of the medical profession, the Bill failed to secure a second reading, but it has made one notable contribution to medical data. When its draft clauses had been originally made public, the proprietor of Umckoloabo appealed to all the supporters of his remedy to write their protests to Capt. Elliston. Within a few days 1350 letters arrived from people who claimed to have been cured or materially relieved. (Doubtless many other men and women had tried the treatment.) It was an exceptional opportunity for checking the testimonials in respect of a patent remedy, for it was possible to sift the claims by means of the public health service. Capt. Elliston sent the letters off in a sack to Dr. Ernest Ward, the secretary of the Joint Tuberculosis Council. Hundreds of communications were addressed to medical officers of health over the entire country. Only one medical officer declined to coöperate; even he, Dr. Ward thinks, might have come into line if he had appreciated what was being done elsewhere. Tuberculosis workers gave their help, and now, after nearly two years, the investigation has dealt with 864 out of the 1350 letters. The questionnaire included an inquiry whether the patient had appeared to benefit from the treatment. The replies spoke of possible benefit in 23 cases, definite benefit in 9. In several instances it was alleged that harm had been done; setting these aside, Dr. Ward gave the following statistics in his presidential address to the Society of Medical Officers of Health, summarised on p. 1098 of this issue.

It was impossible to trace 57 cases (about 6 per cent. of the 864); 200 (23 per cent.) had never been notified as tuberculous. A third group of 62 cases (7 per cent.) was investigated and found not to be tuberculous. The next group of 122 (14 per cent.) consists of patients who had died—the majority within a year of declaring themselves cured or materially relieved; 87 others (10 per cent.) are known to be very ill and unlikely to live long. Then come two nearly equal groups of 156 and 157 (19 per cent. each), the one of patients ill and unable to work, the other of persons in fair health and at work. The residue of 23 cases (2 per cent.) can be classified as recovered. Dr. Ward reasonably suggests a tripartite classification by way of general analysis. There will be the introspective patients who worry over their health and think themselves tuberculous when they are not; there will be what he calls the "straw-clutchers" who, conscious of no progress under standard treatment, turn to the patent remedy after reading the impressive literature about it, and feel themselves benefited by the new cure; lastly there will be the sufferers who, taking the usual treatment, add the patent remedy while the disease follows its normal course.

If these statistics and analyses disprove the claims of Umckoloabo to be the guaranteed cure which it has sometimes been represented to be, if they confirm the desire of the supporters of the Bill to prohibit the advertisement of remedies for diabetes, cancer, and consumption, they nevertheless justify no complacency on the part of the medical profession. The tuberculosis problem, as Dr. Ward remarked in his address, is complex and many-sided; tuberculosis work must never become static. Unprejudiced observers "cannot help being impressed with the futility of much of our treatment in definite cases of tuberculosis." That, observes Dr. Ward, is one of the reasons why patients so often turn to quack remedies.

INJECTION TREATMENT OF HERNIA

CONCERNED at the complications that might follow injection of some of the preparations now advertised for the treatment of hernia,[1] the council on pharmacy and chemistry of the American Medical Association have been collecting information about the current use of the method.[2] Inquiries at selected hospitals have shown that though most of them do not employ injection, it is regarded as effective and safe in those that do. Two cases of gangrene were reported, but on the whole the complications were uncommon and mild—e.g., painful scarring, slight infection, and swelling of the testis. In some institutions the majority of the cases of hernia are treated by injection; in others only 12–15 per cent. are considered suitable. The results in clinics where the treatment is in charge of a specially trained physician are said to satisfy even the surgeons; but unfortunately in the United States the method has been taken up by osteopaths and other laymen with inadequate anatomical and surgical knowledge. The council issue a warning about the injection of proprietary solutions of unknown composition. The Pina Mestre solution, on the other hand, is a proprietary preparation of established value. Its formula, the most active constituents of which are alcohol and tannic acid, was given in 1931 by

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[1] See THE LANCET, Sept. 19th, 1936, p. 694.

[2] Jour. Amer. Med. Assoc., Sept. 26th, 1936, p. 1053.

F. Slater Jameson in a paper[3] in which he concluded that injection, as practised by Pina Mestre of Barcelona, is capable of better results than surgery. Pina Mestre himself specialised in the method for over twenty years and is said to have treated 10,000 cases.

The council found that, besides various mixtures containing tannic acid or tannic acid derivatives, sodium morrhuate and a mixture including phenol alcohol and oil of thuja are being used. Needless to say, hernias do occasionally recur after injection treatment, but it is claimed that the scarring caused does not render a subsequent operation more difficult. Sliding hernia, according to G. and E. Gordon,[4] is an absolute contra-indication; the hernia is not cured and strangulation may conceivably follow. The difficulty is to know beforehand that one is dealing with this type of hernia. A voluminous hernia, with a wide inguinal ring, should be suspected, especially if it is on the right side, for the usual content is the cæcum. For doubtful cases the Gordons suggest either distending the large bowel with water, or radiography. As the non-peritonealised posterior portion of the large intestine becomes adherent to the internal ring, there is, they say, no true reduction of a sliding hernia without operation. Operation on five cases of sliding hernia, which had had injections without success, revealed a vast amount of newly formed cicatricial tissue, with adhesions between the external oblique aponeurosis and the conjoint tendon. Operative repair of the hernia was not interfered with.

Paul T. Butler[5] insists on the importance of repeated examination of patients after the conclusion of their course of injections; fibro-elastic tissue may be absorbed again. He also quotes precautionary measures that he has found indispensable. It is essential, for example, to be sure that omentum is completely reduced before injecting, otherwise adhesions may form that render operation imperative. The greatest care is required to be certain that a vessel has not been entered with the injecting needle. If a vessel is pierced no injection should take place that day.

PSYCHOPATHOLOGY OF UGLINESS

WE have been accustomed to read the occasional excursions into art criticism by celebrated alienists in the past; G. B. Shaw's vigorous rejoinder to Max Nordau's "Degeneration in the Sanity of Art," and more recently Roger Fry's "What the Artist wants of Psycho-analysis," are still fresh in the memory. Only yesterday the Surrealists challenged both art and psychology with canvases which certainly call for explanations that only psychopathology can give. On æsthetic theory in general psychopathology may not lay claim to absolute authority, but on the subject of ugliness and the grotesque it can legitimately help to an insight which general psychology and philosophy fail to provide. Those who are not maudlin and sentimental about art owe a debt to Dr. John Rickman and Mr. J. S. Barwell for their critical analysis of the nature of ugliness, which they together discussed in a symposium arranged last week by the medical section of the British Psychological Society. In the immediate past Freud in an acute essay considered the subject of the uncanny as related to subconscious dreads which were denied access to consciousness, dread of another and unfamiliar self—the agent of unauthorised impulse. Etymology demonstrates the relation between the uncanny and the unfamiliar, the uncertain—the terrifying and the ugly. This affective problem has, as Mr. Barwell stated, its counterpart in the logical antinomies of certainty and doubt.

Art can no longer be simply dismissed as the divine sublimate of baser activities. It is more complex than that. The Freudian analyst now sees art to be related to the basic fears, impulses, and conflicts which make up the dynamics of unconscious activities. Basing his views on the child mind revealed by psycho-analysis, Dr. Rickman argued that our judgments of ugliness are due to the emergence of discordant notes and disharmonic relations that the child feels to exist in the parental relationship and in its own love-hate conflict with the parents. The child is preoccupied by the bad relationships which its phantasy has constructed from its own image of its parents. The child is for ever trying to express these relationships even in its most rudimentary scribblings. It makes ceaseless efforts in behaviour and in symptoms to circumvent the impasse created. It wants to make good the bad relationships that its phantasy has created. In the process of restitution familiar to analysis, the child tries to return good for imagined evil. The harmonies established in art, in the unities of good painting and drawing, is man's attempt to make from his perceptional experience patterns of form and colour that shall satisfy a spectator that a subliminal conflict has somehow been rectified. Art production, therefore, if one can advance on Dr. Rickman, is a dialectic process, in which the perceptual elements on the one hand, and the subliminal stresses on the other, are unified in a new and satisfying synthesis.

Expressionistic art has its centre of gravity in the subliminal pole of the antithesis; impressionistic and academic art in the perceptual—an escape *into* reality. In this sense ugliness is the judgment passed on those art forms which have not resolved the dialectic, but in which disharmony and the intrusion of the egoistic note of dreams is still apparent. The curative value of art, its cathartic quality, is universally recognised; because in the artist we see the sublime executant of our escape mechanism—our emancipation from the baser conflicts and disharmonies which hold us all in thrall. Psycho-analysis, therefore, lends concrete support to the Aristotelian doctrine of tragic catharsis. The artist is the arch physician, and as Shelley said, the poets are the true legislators of the world.

MIXED TUMOURS OF THE SALIVARY GLANDS

FOR ten years McFarland of Philadelphia has been collecting material on the so-called mixed tumours of the salivary glands, and his records cover 25 years of surgical work with information from 27 hospitals. His review of some 300 cases[1] begins by pointing out the difficulties of the subject. The natural history of mixed tumours is by no means fully known, and isolated opinions based on surgical experiences, upon histological observation, or upon post-mortem findings are apt to be fallacious. To understand the natural history of these tumours we must have all the data as long as the patient lives. At one time McFarland regarded them as essentially benign, but in a later paper he came to the conclusion that they are all potentially malignant. Whether or not they should be regarded as adenomata is uncertain, but carcinomatous or sarcomatous transformation may take place even after a benign course of thirty years. At the same time, although many of these tumours do become malignant, they rarely give rise to metastases. Of the present series of 297 cases the condition recurred after operation in 69 (23 per cent.), and 13 of the patients died. The microscope, in McFarland's opinion, is of little assistance in prognosis, except that the outlook may be considered bad in cases with a short history and the histological appearance of carcinoma. The tumour may recur at almost any period after operation; a case is quoted in which there was an interval of 47 years. Hence it is hard to say that any case of mixed tumour is really ever cured. In making a definite diagnosis biopsy may of course be useful, but apart from doubt about its value for prognosis there is the risk of its doing definite harm, since it is well known that immediate recurrence is likely in cases where the capsule is damaged at the time of operation. As for radiotherapy, the author holds that X rays and radium are of no greater value than a knife.

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[3] Clin. Med. and Surg., March, 1931, p. 170.

[4] Jour. Amer. Med. Assoc., Oct. 3rd, 1936, p. 1110.

[5] Med. World (Philadelphia), Sept., 1936, p. 567.

[1] McFarland, J.: Surg., Gyn., and Obst., October, 1936, p. 457.

One of the most disconcerting of McFarland's conclusions is the statement that the smaller the size of the removed tumour, the greater is the probability of recurrence; and from this he contends that operation should be postponed until the tumour is "ripe"—i.e., about the size of a lemon. It will be agreed that some of the small tumours are harder to remove than are the really large ones; for the larger the tumour, the more easily can its limits be defined. On the other hand, there is no doubt that in course of time many of these mixed tumours tend to burrow deeply in the pterygoid region, and where this happens operation becomes much more difficult. In the present paper nothing is said about anatomical sites in relation to the size of the tumour at the time of operation and to subsequent recurrence. A small deep tumour between the angle of the jaw and the mastoid process may be hard to remove, but it is not easy to see how this technical obstacle is going to diminish as the size of the tumour mass increases.

RADIUM IN 1935

THE fourteenth annual report[1] by the Medical Research Council on the radium issued under its control includes as usual an experimental and a clinical section. Interesting physical experiments on the effects of temperature on the absorption of the neutron from a gas into the nuclei of a number of elements are recorded by P. B. Moon and J. R. Tillman, and these together with Mr. Tillman's measurements of the scattering of cell neutrons by paraffin wax provide evidence for the selective absorption probability of different nuclei and neutrons of different velocities. The first spectroscopic measurement of an artificially produced element has been made by F. Paneth at the Imperial College. W. V. Mayneord and J. E. Roberts at the Royal Cancer Hospital have tested the validity of calculated distribution of radium as used in treatment, and the statement of radium dosage in international röntgens (r) is discussed. This point is also raised in the introduction where we are reminded that the question of adopting an international unit for radium dosage is on the agenda of the International Congress of Radiology to be held at Chicago in 1937. The importance of an accepted unit is shown by the biological experiments of F. G. Spear and his co-workers from the Strangeways Research Laboratory, Cambridge, and of H. J. Ham from the Holt Radium Institute, Manchester. The former, who records experiments on biological response as a function of intensity of irradiation and on the effect of gamma radiation on cell division in the tadpole, used a Sievert unit of intensity. Dr. Ham states his dose in terms of international röntgens, and investigated the effect of variation in time intervals when radiating rodent ulcers and skin epitheliomata with radium over a total period of seven days. Joan Ross reports from the Royal Free Hospital on the carcinogenic action of prolonged gamma radiation (the subject of a recent annotation in our columns[2]), and J. C. Mottram at the Mount Vernon Hospital has produced sarcomata in three out of twelve fowls by repeated exposure to radium.

On the clinical side reports from the eleven hospitals and two additional centres which are accepted as research centres suggest steady progress. This is most noticeable in carcinoma of the cervix where the cases treated in 1930 show a survival rate of 35 per cent., a very satisfactory figure. For carcinoma of the uterine body, in which operation is still the method of choice in most clinics, the number treated is small, but when it is remembered that the sample consists mostly of cases clinically and technically inoperable the results are surprisingly good. Cancer of the breast still presents many difficulties, and the statement from Birmingham and the tables from Aberdeen and St. Bartholomew's Hospital, noting that histological examination of breasts removed surgically after irradiation either by radium or X rays still shows the presence of cancer cells which are probably viable, will surprise no one who has had experience of these cases. In cancer of the mouth, nasopharynx, larynx, and œsophagus reports from the Middlesex and University College Hospitals describe the use of one-gramme radium units. These two hospitals together with the Royal Cancer Hospital are to issue a combined report on the results of treatment with these units, and in view of the fact that more radium is now available the report will be eagerly awaited. The results of treatment of carcinoma of the rectum show that in suitable cases radium still has a place. The figures for sarcoma do not distinguish between osteogenic sarcoma and lymphosarcoma which react differently to radium.

PULMONARY DISEASE AFFECTING COAL-MINERS

THE announcement in some daily papers that the Medical Research Council contemplate a big investigation into pulmonary disease among miners is premature. Such a scheme is certainly under discussion and the importance and urgency of the problem are recognised but there are still various points which have to be explored by the appropriate committee (on industrial pulmonary disease) of the Medical Research Council before the matter is ripe for a decision by the Council. The occurrence of pulmonary disease in coal-miners has been under consideration for some time by the committee, whose chief difficulty is to devise the kind of investigation most likely to increase knowledge of its causes, incidence, and differential diagnosis in a way that will lead to practical results. In order to ascertain the effects of coal dust alone on the lungs this committee, with the coöperation of the statistical committee of the Council, explored the possibility of gaining information by means of a medical inquiry, and in 1933 clinical and radiological examinations were made of a number of coal trimmers. The result of this inquiry showed that in the group examined exposure to coal dust over varying periods of years had not caused disease of the lungs. The committee have recently interviewed a number of affected coal-miners and doctors practising amongst them in the South Wales coal-field, and they have also discussed with members of the Silicosis Medical Board the pulmonary disorders of coal-miners, especially as they occur in South Wales, with a view to determining the lines of study to be pursued. They are agreed that the general lines of the investigation should include (1) clinical and radiological examination of miners; (2) search of existing records of cases of disability; (3) dust sampling in certain selected coal-mines and in different occupational positions; (4) chemical and petrological examination of the samples of atmospheric dust from the mines; and (5) coördination of these lines of investigation and other related research. Detailed proposals to this end for submission to the Medical Research Council are now being considered by the committee.

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[1] Medical Uses of Radium. Summary of Reports from Research Centres for 1935. Medical Research Council, Spec. Rep. Ser. No. 216. H.M. Stationery Office. 1936. Pp. 38. 3s.

[2] THE LANCET, Oct. 10th, p. 864.

GUIDES TO THE POISONS RULES

THE rules for the distribution of poisons, which came into effect on May 1st last, affect the conduct of many types of person who have a share in their distribution. Each of these types has its own problems and difficulties; each is likely to get a shock at an inquest for some want of care or it may be of knowledge on his own part. A few months ago we suggested[1] what every medical practitioner should know about his own obligations; the fact that one of the London coroners, as we mentioned last week (p. 1060), would like to see even the medical practitioner's discretion still further limited, emphasises the care with which the rules should be observed. Three memoranda[2] recently issued by the Home Office expound the rules not only for the benefit of practitioners but also for wholesalers, agriculturists, hospitals, and dispensaries. Without possessing the appropriate memorandum, it is not safe for any of these persons or institutions to do business with poisons; even with the memorandum, close attention must be given to it, if the law is not to be broken. Memorandum No. 2 is for wholesalers —i.e., all those, other than retail traders, who are engaged in any trade dealing in poisons in one form or another. The first column of Appendix I. to this memorandum informs the wholesaler whether any article he sells is or contains a statutory poison. Some of these statutory poisons—for example, builders' materials, matches, and motor lubricants—are exempted from control. The exempted poisons are shown in the third column and footnote of Appendix I. Those not exempted may come under the category of First-schedule substances or they may not. Thus the wholesaler may be selling arsenical substances or substances containing arsenic as an impurity. Provided the substance sold does not contain the equivalent of 0·01 per cent. or more of arsenic trioxide, it does not fall within the First-schedule and may be sold subject to certain clearly defined restrictions as described in parts II. and III. of the memorandum. If however the substance contains, let us say, barium carbonate in any percentage whatsoever, or atropine in a percentage of 0·15 or over, it comes within the First-schedule and is subject to further restrictions which are described in part IV. of the memorandum. The fourth column of Appendix I. shows whether substances fall within the First-schedule or not, but if the wholesaler is in any doubt he should consult an analytical chemist lest he unwittingly renders himself liable to prosecution. He must realise that the quantity of poison present in a substance that he sells is a matter of fact and not a matter upon which the Home Office or any other body can give a ruling.

Memorandum No. 3 concerns practitioners and institutions. Various approved types of hospital and institution, provided that certain conditions are complied with, are relieved from the provisions of the Act and rules (except Rule 20) and may supply poisons to out-patients. The conditions include, among others, the necessity of keeping a record of any First-schedule substance supplied. There are also precise rules for supply and storage of poisons within institutions.

Memorandum No. 4, for those engaged in agriculture and horticulture, explains how the rules for professionals differ from those for amateurs. The amateur wishing to buy First-schedule substances must either be known to the seller as a fit and proper person to whom the poison may be sold or else produce a certificate of character, in the form printed in the appendix to this memorandum, signed by a householder. The amateur must also sign the poisons book kept by the seller; nor can he buy direct from a wholesaler. The professional, on the other hand, though subject to formalities when buying First-schedule substances, has wider sources of supply. Not only may he obtain poisons direct from a wholesaler but the range of poisons which he can buy from a listed seller is wider than the amateur's. Thus the professional may buy various arsenicals and mercurials in the form of sheep dips, insecticides, and fungicides. Moreover, unlike the amateur, he may buy through agents. But neither the professional nor the amateur may buy from a van "at the door."

Mr. Walter Elliot, M.B. Glasg., F.R.S., who has for the last four years been Minister of Agriculture and Fisheries, has been appointed Secretary of State for Scotland.

Colonel H. T. Bates, O.B.E., T.D., M.B., Territorial Army, has been appointed honorary physician to the King, in succession to Colonel L. D. Bailey, C.B., M.C., T.D., Territorial Army, who has retired.

Sir John Parsons, F.R.S., president of the Royal Society of Medicine for the current year, has recently visited the United States as the guest of the American Academy of Ophthalmology and Otolaryngology. During his visit to New York he was the recipient of the Lucien Howe medal of the American Ophthalmological Society, previous recipients of which have been: Carl Koller, Alexander Duane, Ernst Fuchs, Edward Jackson, Priestley Smith, Theodor Axenfeld, F. H. Verhoeff, and G. E. de Schweinitz. An address delivered by Sir John to the American Academy, on Ophthalmology and Research, will be published shortly in the *British Journal of Ophthalmology.*

Sir Alfred Blenkinsop, who died on Nov. 3rd at Frensham, Surrey, in his 72nd year, was assistant commandant at the R.A.M. College, Millbank, when war broke out in 1914 and was then in succession assistant director-general Army Medical Services at Whitehall and deputy director of medical services in the Eastern Command. On his retirement in 1923 with the rank of major-general he was made K.C.B., and appointed honorary surgeon to the King.

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[1] THE LANCET, 1936, i., 1313.

[2] Home Office. Poisons. No. 2 (Wholesalers), 6*d.*; No. 3 (Practitioners and Hospitals), 3*d.*; No. 4 (Agriculture and Horticulture), 2*d.* H.M. Stationery Office.

PROGNOSIS

A Series of Signed Articles contributed by invitation

CXIX.—PROGNOSIS IN CANCER OF THE RECTUM

(*Concluded from p. 1057*)

PROGNOSIS BASED ON ST. MARK'S HOSPITAL STATISTICS

(*a*) *Operative mortality.*—Table II. shows that in St. Mark's Hospital the operative mortality for 286 perineal excisions has been only 7 per cent., which figure is almost identical with that of 7·7 per cent. recorded by F. W. Rankin (1927) in a series of 260 perineal excisions. The feature of this Table is the group of 46 A cases in which the mortality after perineal excision was nil. In the C group the mortality from operation was nearly 11 per cent.

TABLE II

Showing Operation Mortality after Radical Excision of the Rectum. (*St. Mark's Hospital*)

Classification of growth.	Perineal excision.			Combined excision (abdomino-perineal or perineo-abdominal).		
	Submitted to op.	Died from op.	Op. mortality (per cent.)	Submitted to op.	Died from op.	Op. mortality (per cent.)
Group A	46	0	0·0	13	2	15·4
,, B	100	5	5·0	58	17	29·3
,, C	140	15	10·7	85	20	23·5
Total ..	286	20	7	156	39	25

The parallel figures for 156 cases of combined excision of the rectum (23 abdomino-perineal, 133 perineo-abdominal) are now recorded, the total mortality being 25 per cent.; this figure expresses the danger of combined excision of the rectum when it is necessitated by the height of the growth or, in advanced cases, by the hope of reaching above the level of lymphatic spread. The 133 perineo-abdominal excisions now referred to represent the first large series of this operation: no age limit has been observed and the operation has been done with success up to the age of 77; 24 cases were aged 65 or over. A number of unsuitable subjects on account of stoutness or general frailty have come safely through the operation and there is reason to hope that with increasing experience a lowering of the operation mortality may be achieved. For purposes of comparison the Ministry of Health statistics may be mentioned, an operation mortality of 32 per cent. being found in 100 collected cases.

(*b*) *Operability rate.*—No statement regarding operation mortality can be regarded as complete unless the rate of operability is shown. For instance, if a series of cases is chosen in which the borderline cases are excluded, the series actually operated upon will certainly contain a larger proportion of A cases with a resulting advantage to the figure for operative mortality and end-results. At St. Mark's Hospital for the years 1921–31 the operability rate was 54 per cent.; during 1934 the rate was 53 per cent., and for 1935 it was 60 per cent. This high operability rate was achieved partly by judicious selection of operation—i.e., perineal excision for lower third tumours, perineo-abdominal excision for advanced and upper third tumours, and partly by the policy of not rejecting any borderline case as inoperable without an exploratory laparotomy.

SURVIVAL RATE

The five-year survival rate has now been worked out for cases of perineal excision operated upon in St. Mark's Hospital subsequently to the adoption of pathological grouping and not later than October, 1931 (Table III.).

TABLE III

Results of Perineal Excision on a Five-year Basis

Classification of growth.	Operation survivals.	Untraced and died of other causes.	Alive at 5 years.	Per cent. of 5-year survivals.
Group A ..	30	2	26	93
,, B ..	50	7	28	65
,, C ..	62	5	13	23
Total ..	142	14	67	52

Apart from the fair figure of 52 per cent. of five-year survivals for all three groups combined, this Table shows the remarkable figure of a 93 per cent. survival rate for A cases. A result such as this cannot be without significance: it must assuredly be an index of what can be achieved in a larger series of A cases, and should serve as good propaganda in favour of early diagnosis, and earlier submission of suspected cases to skilled examination and surgical treatment. It has been shown (Table I.) that the A cases constitute 15 per cent. of operable cases; this means that if all cases, operable and inoperable, are taken together, the A group would form less than 10 per cent., which is a sadly low percentage and is capable of improvement.

In young subjects the prognosis of rectal cancer is much worse than the average; this aspect of the disease has been reported on by Rankin and Comfort (1929). That in young subjects only a small proportion prove to be operable is due no doubt to the rapidity of the growth and late diagnosis. The cases treated by resection show an increased proportion in the C group, and a higher percentage of Grades 3 and 4 by Broders' classification. The occasional good result however should encourage radical treatment, and the St. Mark's records show the names of five patients under 35 years of age who have survived the five-year period.

UNFORESEEN FACTORS

Under certain conditions a good prognosis may be invalidated unexpectedly:—

1. In the course of extrarectal spread there may occur a malignant invasion of one or more of the superior hæmorrhoidal veins with risk of malignant emboli reaching the liver by the blood stream. This introduces an element of chance in every radical operation, for even when the liver feels smooth, central secondary deposits may already be present, or emboli may be set free during the operative manœuvres.

2. A second carcinoma independent of the rectal growth may be present in the colon above the level reached by an excision of the rectum, or it may develop subsequently; this has happened on several occasions after perineal excision, the new growth arising in the blind loop of pelvic colon between the colostomy and the pelvic floor.

3. Malignant disease in other organs is known to have brought about the death of five patients in the

St. Mark's Hospital records after a successful excision of the rectum: thus two A cases have died from carcinoma of the ovary and thyroid respectively; a B case from carcinoma of the larynx; one case has died from primary carcinoma of the lung more than five years after perineal excision, and another from carcinoma of the breast more than four years after perineal excision.

CONCLUSIONS

A thorough general and local examination is necessary to decide whether or not the patient is fit to stand the operation of excision of the rectum for cancer. Slightly more than half the cases prove to be operable when first examined by the surgeon. The prognosis for patients who have been treated by rectal excision depends on the extent of spread of the tumour. This can be decided by pathological examination of the excised specimen, and it may be said with confidence that in the A type of case the malignant disease is completely eradicated by rectal excision, and the prognosis may be described as excellent. In the B type of case the majority of the patients have no further recurrence of the disease but a few die from pelvic or hepatic metastases; those cases in which the peritoneal surface of the growth has become ulcerated are liable ultimately to show signs of peritoneal dissemination, but on the whole the prognosis may be described as good for B cases. For the C type of case with glandular metastases the prognosis is doubtful; in any given case it is important to decide whether only the regional lymphatic glands are affected or whether the glandular spread has extended up as far as the point of ligation of the hæmorrhoidal or inferior mesenteric vessels. Finally it may be noted that the prognosis is always relatively good in the tumour which falls into histological malignancy Grade 1, whereas tumours of Grade 4 usually grow very rapidly and lead to death in a few months.

The statistics in this paper are obtained from the Cancer Follow-up Scheme of St. Mark's Hospital, which scheme has been financed by the Medical Research Council since 1922. The section dealing with pathological investigations and their relation to prognosis has been written in collaboration with my colleague Dr. Cuthbert Dukes, to whom I am indebted for the figures shown in Table I.

W. B. GABRIEL, M.S., F.R.C.S.,
Surgeon to St. Mark's Hospital.

POST-GRADUATE LECTURES

DURING the past month we have published extracts from, or abstracts of, eleven of the lectures delivered at London teaching schools during the autumn post-graduate courses. Resuming the series after a week's interval we summarise the addresses given by *Mr. Patterson at the London Hospital and by Dr.* Sheldon at King's.

HOARSENESS

(MR. NORMAN PATTERSON)

HOARSENESS may be a fleeting affair due to temporary interference with phonation, caused for example by a foreign body passing through the glottis. In acute laryngitis it may last for a few days. At birth or soon afterwards, as the result of maldevelopment or congenital syphilis, hoarseness may arise which persists throughout life.

Hoarseness may be periodic or vary in character from time to time. Many different degrees are met with, ranging from the raucous voice of chronic alcoholism to the soft whisper of functional aphonia. Serious deterioration in the singing voice, especially in tenors and sopranos, may be caused by conditions which would have no effect on ordinary speech. Hoarseness is nearly always due to some affection of the vocal cords, but the voice may be altered by changes elsewhere; for example, nasal obstruction, altered conditions in the soft palate and pharynx, and tracheal obstruction. Correct functioning of the cords depends on several factors. The slightest irregularity on the edge of the cord caused by an almost invisible nodule such as a singer's node, uniform thickening of the cord due for instance to chronic laryngitis, interference with movements at the crico-arytenoid joint—perhaps the most important joint in the whole body—may cause changes in the voice.

Sometimes inflammation spreads to the internal tensor muscles and during phonation the cords fail to approximate, leaving an elliptical gap. This allows air which ought to be employed in voice production to escape, a condition known as "phonative waste." The same thing happens where a cord is completely paralysed. Although the larynx of a hoarse patient may appear normal on examination, it is very unwise to make the statement that there is nothing the matter. Conversely, marked changes are sometimes present without causing hoarseness. Abductor paralysis may have developed, but so long as the adductor muscles remain active the voice will remain unimpaired. Sometimes in cases of complete paralysis of one cord compensation has taken place and the patient may speak and even sing normally. An ulcer or tumour may be present on the epiglottis, ary-epiglottic fold, or below the cord without causing any change of voice.

As is the case with many machines, lubrication plays an important part. The ventricles, which contain many mucous glands, pour their secretions on to the upper surface of the cords. Diminution in the supply of mucus causes dry laryngitis which is sometimes associated with some general condition such as diabetes. Mucus or muco-pus may descend into the larynx in such conditions as nasal sinusitis, or adenoids, or excessive secretions may ascend from the lower air passages in bronchiectasis, and other lung diseases. The voice will be muffled and phlegmy, and if there is accompanying laryngitis it will be hoarse. Sometimes the secretions dry and form crusts of considerable size which cover the cords and interfere with phonation. Such cases are generally, but not always, associated with crusting in the nose (ozæna). I have seen this disease when limited to the larynx cured in a child by the removal of adenoids.

I shall consider very briefly some diseases in which hoarseness is an important symptom. Cancer of the larynx originating on the vocal cord is worthy of special attention. No patient over 40 should be allowed to suffer from hoarseness for more than a month without a laryngeal examination being made by an expert. The condition is much more common in men but it may occur in women, and it is sometimes met with in comparatively young people. Patients with cancer of the larynx are frequently treated for months with gargles and inhalations, and the opportunity of removing a tumour in its early stages is lost. This is a tragedy of the first magnitude, for cancer of the vocal cord when diagnosed early can be operated on with lasting success in 70–80 per cent. of cases. Can comparable results be obtained in any other region of the body?

In laryngeal tuberculosis the voice is generally weak. Definite huskiness may be observed although the laryngeal changes amount to no more than slight anæmia or unilateral or patchy congestion. Sometimes the cords fail to approximate on phonation and the condition is liable to be diagnosed as one of functional aphonia. Characteristic tuberculous lesions may be present in the larynx, when the most expert physician can find no evidence of disease in the chest. In tuberculosis affecting the right apex and pleura paralysis of the corresponding cord may occur.

Lupus of the larynx, which if it affects the cords will also cause hoarseness, generally follows nasal lupus; the laryngeal disease responds more readily to treatment. True tuberculosis begins in the lungs and is never primary in the larynx. Later on the pharynx may become affected. The higher up the lesion in genuine tuberculosis the more serious it is and the more difficult to cure.

Syphilis is a fairly common cause of hoarseness. The inherited form may appear shortly after birth or at puberty. In adult patients secondary or tertiary lesions give rise as a rule to characteristic appearances, and syphilitic manifestations may occur elsewhere.

In differentiating between malignant disease, tubercle, and tertiary syphilis, examination of the sputum and blood will prove a helpful diagnostic aid.

Various innocent tumours, and swellings due to chronic inflammation, can produce hoarseness. The diagnosis between these and more serious conditions may present considerable difficulty. Organic disease affecting nerve centres in the medulla or nerve-fibres passing from these centres to the laryngeal muscles may give rise to dyspnœa or dysphonia. Medullary lesions generally cause bilateral paralysis, lesions in the course of nerve-fibres paralysis on the same side. Diagnosis is facilitated by an accurate knowledge of the relationships of the various medullary nuclei and of the nerves which spring from the cells of these nuclei. You will remember that in the neck the vagus which carries motor and sensory impulses to the larynx lies in fairly close proximity to the sympathetic chain and to the phrenic. Associated paralysis is a fairly common phenomenon and the nature of the combination of nerves affected may indicate the situation of the lesion. In some grave conditions the key to diagnosis may be forthcoming after a laryngeal examination. I may instance such diseases as locomotor ataxy in which laryngeal symptoms may develop years before any others, aortic aneurysm, and cancer of the œsophagus or lung. It is well known that laryngeal paralysis may follow an operation on the thyroid gland; it is not so generally recognised that long after an apparently successful operation for cancer of the breast paralysis of a vocal cord may indicate metastases in the mediastinal glands.

ABDOMINAL TUBERCULOSIS IN CHILDHOOD

(Dr. Wilfrid Sheldon)

While the diagnosis of many other diseases has been simplified by new methods of investigation, the diagnosis of abdominal tuberculosis remains strictly clinical.

The great majority of the cases are the result of infection with the bovine type of tubercle bacillus, the bacilli reaching the abdomen through the medium of raw cow's milk and to a less extent in cream, which probably accounts for the fact that the condition attains its highest incidence in the second year, at a time when cow's milk is still the main constituent of the diet. That a small proportion of the cases are due to infection with the human type of bacillus is not to be wondered at, for of course milk may be infected from human sources. Moreover, children with intrathoracic tuberculous lesions often cough up sputum which they swallow instead of spitting out, and so secondarily infect the abdomen; in fact it is quite common to find at the post-mortem examination of a child who has died from intrathoracic tuberculosis, lesions of more recent date in the intestines or mesenteric glands.

PATHOLOGY

The pathological events in the abdomen can best be visualised under the three headings of intestinal ulceration, tabes mesenterica, and peritonitis.

Intestinal ulceration is found in about a fifth of the cases. When ulcers form they are usually to be seen in the lower end of the ileum, often commencing in Peyer's patches, and spreading in a circular fashion round the bowel. In severe cases they may coalesce and give rise to destruction of large areas of that very part of the mucosa where the products of digestion are chiefly absorbed. Perforation of a tuberculous ulcer leading to septic peritonitis is quite exceptional, probably because before perforation can take place the affected portion of intestine has already become shut off by adhesions from the general peritoneal cavity.

Tabes Mesenterica.—Tuberculosis of the mesenteric glands is the most common form of abdominal tuberculosis to be found post mortem. The glands first affected are as a rule those that drain the lower end of the ileum, and are therefore situated in the lower end of the mesentery in the right iliac fossa. The infection may spread thence to involve glands higher up the mesentery, or the para-aortic chain of glands may become affected, and occasionally the process may reach as high as the mediastinal glands. When the mesenteric glands over a large area are involved the lacteals may become so obstructed that the absorption of fat from the intestine is interfered with, and the stools then become as fatty as the stools in cœliac disease. In many cases the glands heal by a process of fibrosis and calcification; in others they become adherent to neighbouring coils of intestine, and, even years after healing has taken place, the adhesions may give rise to symptoms of intestinal obstruction. Lastly there is a danger that the glands may soften, and their contents leak into the peritoneum to cause tuberculous peritonitis.

Tuberculous Peritonitis.—Infection of the peritoneum gives rise at first to the formation of miliary tubercles, to which the peritoneum may react by the production of a serous effusion. When the infection has been a mild one, the gradual absorption of the ascitic fluid may coincide with recovery, but more often as the fluid disappears the intestines become matted together into a conglomerate mass—plastic tuberculous peritonitis. The more severe cases omit the ascitic stage, plastic peritonitis being the first evidence that the peritoneum has become involved. Occasionally, owing to previously formed adhesions, tuberculous peritonitis develops only locally. An abscess then forms, and is usually situated in the right iliac fossa.

SYMPTOMS

The symptoms are most conveniently considered under the same headings as the pathological events, but it must be understood that the various stages may overlap, and the physician must be prepared to find any combination of them in one and the same child.

Tuberculous Enteritis.—The onset is insidious, and the child is brought on account of abdominal pain, diarrhœa, or loss of flesh. The pain is colicky, and situated round about the umbilicus. The stools tend to be loose, and may contain pus and blood, and the tubercle bacillus may be recovered from them. The general effects of tuberculous infection are generally prominent—loss of flesh is rapid and obvious, the temperature shows a daily swing over several degrees, and flushing of the cheeks and sweating are usually present. On examination the abdomen is reminiscent of typhoid fever—it is tumid, a little resistant, and diffusely tender.

Tabes Mesenterica.—This, the commonest form of abdominal tuberculosis, has the least conspicuous symptoms and signs. The first complaint is likely to be abdominal pain of a niggling vague character, localised, if anywhere, to the region of the umbilicus, and not particularly related to the taking of food. By the time the child is first seen these pains have been present for several weeks, and the weight has either been stationary or may have dropped a little, the appetite has been poor, the bowels have been alternately loose or constipated, and the temperature has been raised a degree or two.

There is one essential physical sign—the glands are palpable. They are most likely to be felt in the right iliac fossa as small slightly movable pellets, the size of an acorn, and they may be a little tender. There is often real difficulty in telling them from fæcal masses; the latter can sometimes be indented by firm palpation, but it is unwise to try to indent a tuberculous gland for fear of rupturing it, and often a final opinion must be deferred for a week or so while a course of laxatives is given, for if at the end of this time the pellets have moved or disappeared, the fear of glands can be excluded. Occasionally the glands are situated below or to the left of the umbilicus, and I have found them between the umbilicus and the left costal margin.

Tuberculous Peritonitis.—The ascitic form seldom presents much difficulty, for ascites which has arisen insidiously, is, in a child, almost always due to tuberculosis. Loss of flesh, fever, and a history of abdominal pains and a failure of nutrition for some weeks previously afford corroborative evidence.

The outstanding feature of the plastic form of peritonitis is the "doughy" feeling of the abdomen when it is palpated. The abdomen is swollen, slightly tender, and diffusely resistant so that structures within cannot be felt. The impression is as though the abdomen has been tightly packed with cotton-wool. The omentum tends to become bunched up into an adherent mass lying across the epigastrium, where it may be felt as a sausage-shaped tumour. It can be distinguished from the liver by the fact that it has an upper as well as a lower border, and from the much less common tumour of a chronic intussusception in that it does not undergo periodic hardening, nor is accompanied by peristalsis.

The general symptoms of tuberculous infection are as a rule prominent in the plastic form of peritonitis. The temperature is high and swinging, there may be much sweating, and there is a striking loss of flesh.

Auxiliary Examinations.—There are three in number. (1) When there is tuberculous enteritis, examination of the stools may show the presence of tubercle bacilli. (2) X ray examination of the abdomen may be undertaken with the object of demonstrating tuberculous glands, although these will only show if they have already begun to heal by calcification, and therefore a negative X ray picture cannot be taken to exclude the diagnosis. (3) The Mantoux tuberculin test may also be used. It consists of the intradermal injection of 0·1 c.cm. of 1 : 1000 tuberculin. Stronger dilutions of tuberculin are often used, but there is a risk that they may set up a severe reaction, and it has been my experience that more help is to be gained by keeping the tuberculin at as weak a strength as 1 : 1000. A positive reaction develops in 24–28 hours as a raised œdematous red area at the site of inoculation; the swelling lasts for four or five days, and some staining of the skin may remain for a few weeks. In general terms a positive reaction during the first three years of life may be taken as corroborative evidence of the presence of an active focus of tuberculosis, but after this age it merely means that the child has at some time been infected with the tubercle bacillus, and does not necessarily imply that the symptoms under consideration are due to tuberculosis. A negative reaction is of much value in helping to exclude tuberculous infection, provided that it is borne in mind that the reaction is likely to become negative in the event of acute tuberculous disease such as tuberculous peritonitis or miliary tuberculosis.

TREATMENT

The two essentials are rest and fresh air. To begin with rest should be absolute, the child spending all day in bed, and it is an advantage to obtain the services of a trained nurse. The period for which rest should continue may be judged by the temperature, the pulse-rate, and the sedimentation-rate of the red cells, for convalescence should not begin until these three have fallen to normal limits. With regard to fresh air, the child should spend as much of the day as possible out of doors on a balcony or in the garden. The clothing needs to be warm but light, and the child should not be muffled up too much; indeed, there is every advantage in allowing short exposures of the trunk and limbs to the sun and air. The diet must be as nourishing as the child's appetite will allow, but "roughage," including articles of diet which contain an indigestible cellulose residue, should be omitted, for if the mucosa is ulcerated they could do nothing but harm. As to drugs, cod-liver oil and malt, creosote ♏ ¼ with malt, or equal parts of syrup of the iodide of iron and malt, may all be usefully employed. Intestinal antiseptics such as salol (gr. 1) or iodoform (gr. ½) may also be given. The inunction of drugs into the abdominal wall, such as cod-liver oil, mercury, or iodoform, has been recommended, but to massage the site of the disease is inconsistent with complete rest; and, moreover, there is no good reason to suppose that a drug rubbed into the anterior abdominal wall is any more likely to reach glands situated on the posterior abdominal wall than would inunctions over other parts.

A wide trial has been made of injections of tuberculin. It is important to give small doses, beginning with 0·00001 mg., and provided that this does not give rise to any reaction, to repeat the injections at ten-day intervals; but in my experience this treatment seems to have made little effect.

SPECIAL ARTICLES

PULMONARY TUBERCULOSIS IN INDUSTRY

INCIDENCE AND AFTER-HISTORY

AN ANALYSIS OF 3755 CASES

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IT cannot be claimed that the Post Office is representative of industry at large, but it is numerically the largest employer of labour in this country, with a total staff of some 185,000 men and 55,000 women. It also embraces a great variety of employments, outdoor and indoor, manual, technical, and clerical. Its experience, therefore, in the incidence of pulmonary tuberculosis, and in the after-history of cured or arrested cases that have returned to duty, may perhaps be of some general interest. As regards incidence rates, those to be quoted are in respect of the established staff of about 121,000 men and 35,000 women, all of whom have been subjected before establishment to a very thorough medical examination. But, on the other hand, they have all been between the ages of 16 and 60, which embraces the period of life during which pulmonary tuberculosis is most likely to manifest itself, whereas incidence rates reported for the community at large must be based upon a population including very large numbers of persons below and above these ages, in which the occurrence of pulmonary tuberculosis is relatively uncommon, and must therefore, to a considerable extent, be diluted by these. Between the years 1914 and 1935, the incidence rate of pulmonary tuberculosis in the established staff of the Post Office has in some years been less and in some fractionally higher than that reported for the whole population of England and Wales. The tendency, however, in common with recent general experience, has been in the direction of a steady decrease; and the incidence rate for the year 1935—namely, 1·04 per 1000 employees—was the lowest in Post Office records.

As regards the rate of incidence amongst Post Office workers in London and those in the provinces, the average rate of incidence for the years 1920 to 1935 inclusive was 1·55 per 1000 employees for London, as compared with 1·43 per 1000 for the provinces. As between men and women workers, the average rate of incidence for the years 1920 to 1935 inclusive was 1·54 per 1000 of male workers and 1·24 per 1000 of female workers. Over the same period, the average rate of incidence amongst manual, mainly outdoor workers, was 1·92 per 1000 in London and 1·56 per 1000 in the provinces, as compared with 1·21 per 1000 for non-manual indoor workers in London and 1·06 for non-manual indoor workers in the provinces. It will thus be seen that the highest rate of incidence has been amongst manual, mainly outdoor, workers in London and the lowest amongst non-manual indoor workers in the provinces, the comparative advantage in the case of the latter group being 0·86 per 1000 employees.

TABLE I.—*Age-distribution of* 1848 *cases returning to work in the years* 1914 *to* 1926 *inclusive*

Age in years.	No. of cases.	
	Men.	Women.
Under 20	35	17
Between 20 and 30	420	143
" 30 " 40	661	55
Over 40	488	25

Four cases occurred in earlier years whose ages could not be traced.

Unfortunately, accurate statistics of the numerical composition of the whole Post Office staff for the observed years, in age-groups, are not available; and therefore percentage incidence rates in age-groups cannot be given. For what it is worth, however, Table I. has been constructed.

TABLE II.—ANNUAL WASTAGE FOR FIRST TEN YEARS AFTER RESUMPTION OF WORK

A = Retired, or died of pulmonary tuberculosis. B = Retired, or died of other causes. C = Retired for non-health reasons.

Year.	Cured or arrested cases returned.	Year—1st.			2nd.			3rd.			4th.			5th.			6th.			7th.			8th.			9th.			10th.			Total wastage due to ill-health.	Net survival number.
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C		
1914	156	4	..	2	23	..	5	24	..	4	9	1	4	6	..	4	6	2	2	3	..	1	1	1	1	1	1	2	2	..	1	84	46
1915	128	1	..	..	13	..	5	15	3	2	10	3	4	8	..	2	5	1	..	3	1	1	1	3	..	1	..	7	1	..	..	69	38
1916	154	8	..	1	22	2	2	16	2	..	8	1	4	7	1	..	3	..	..	2	2	2	..	1	7	3	..	..	..	1	..	79	59
1917	143	4	..	..	25	3	6	15	2	1	5	..	..	5	1	..	3	..	2	3	2	5	1	2	..	..	..	1	1	..	..	72	56
1918	180	2	1	1	20	1	3	21	1	1	10	..	2	7	1	1	1	..	2	5	..	1	2	2	1	2	..	1	1	1	4	78	85
1919	166	3	..	1	19	1	3	13	1	3	6	..	5	6	1	4	5	2	3	2	3	3	1	1	1	1	1	..	6	4	2	76	65
1920	147	1	..	..	13	3	3	13	1	1	6	2	5	6	..	1	2	..	2	1	..	..	2	..	..	2	..	2	..	2	2	54	77
1921	127	1	..	2	15	1	2	10	1	6	6	1	4	2	..	2	2	..	2	1	..	..	5	..	..	2	..	2	1	1	..	49	58
1922	104	1	1	1	13	1	1	11	3	2	3	3	..	7	1	..	4	..	..	3	..	1	4	1	1	..	..	..	1	..	1	57	40
1923	145	2	..	1	9	1	1	19	2	5	11	1	1	5	2	1	6	..	1	8	..	1	3	..	1	3	2	1	3	2	..	79	53
1924	141	..	..	2	9	2	2	18	2	1	7	..	2	9	..	5	9	1	2	6	..	4	3	..	..	..	..	1	..	..	2	66	54
1925	149	..	..	..	10	1	4	15	1	5	17	..	..	4	1	2	5	1	..	6	1	1	3	1	1	2	..	1	2	1	1	71	63
1926	108	..	..	1	8	2	3	11	1	..	6	3	4	6	1	1	3	1	1	3	1	..	1	..	..	..	..	..	4	..	1	51	46
	1848	27	2	12	199	18	40	201	20	31	104	15	35	78	9	23	54	8	17	46	10	20	27	12	13	17	4	18	22	12	14	885	740

Turning to the after-history, in ordinary working conditions, of cured or arrested cases of pulmonary tuberculosis, it should, perhaps, first be made clear that, as long as there is a reasonable prospect of recovery to render regular and efficient service, the Post Office has been prepared to allow very prolonged periods of sick absence, frequently exceeding a year in duration. It has been found, however, during the last twenty-two years, that the percentage of cases of pulmonary tuberculosis able to return to work has remained fairly constantly at not more than 50. Thus, of a group of 3755 cases occurring in the years 1914 to 1926 inclusive, the number resuming duty was 1848: the after-history of this group during the first ten years following resumption of work is shown in Table II.

It will be seen that of this group of 1848 cases there had been—ignoring retirements for other causes—a further wastage by the end of ten years of 775 cases due to recurrent pulmonary tuberculosis, and 110 cases due to other forms of ill-health—i.e., a total wastage due to ill-health during the ensuing ten years after resumption of work of about 48 per cent.—an approximately 44 per cent. wastage having occurred during the first six years after resumption, and of the survivors, another 16·6 per cent. wastage during the next four years.

It is usual in the Post Office, on resumption after pulmonary tuberculosis, to arrange, whenever possible, for a period, often prolonged for several years, of regular indoor duty. And, although the climatic factor, *per se* and in most cases, is regarded as considerably less important than those of personal régime and immediate domestic environment, transfers are not infrequently arranged to country or seaside places. Nevertheless experience has shown that the subsequent wastage due to recurrent pulmonary tuberculosis or other ill-health is somewhat higher in the manual, mainly outdoor, classes (male) than in the others. Thus, out of a group of 950 such workers, returning cured or arrested in the years 1914 to 1926 inclusive, there had been a wastage of 578, or roughly 60 per cent., as the result of recurrent pulmonary tuberculosis or other ill-health, by the end of ten years. Out of a group of 542 light manual or clerical indoor workers (male) returning cured or arrested in the same period, there had been a wastage for these causes of 272, or roughly 50 per cent.

As regards the industrial survival rate amongst women workers returning cured or arrested, the relatively large number of subsequent resignations, not specifically attributed to ill-health—and many, no doubt, for marriage and domestic reasons—tends to invalidate any conclusions. Of a group of 231 such cases returning to work in the years 1914–26 inclusive, 65 had either died or retired from recurrent pulmonary tuberculosis, and 17 from other forms of ill-health by the end of ten years, 82 of the group being still in the Service at the end of that time.

Given industrial survival after ten years, however, the further outlook would appear to become less unfavourable; and in a group of ten-years' survivors, whom it was possible to observe for another five years, there was a wastage, by the end of that period, of not more than about 14 per cent., 39 of the subsequent deaths or retirements having been due to recurrent pulmonary tuberculosis and 28 to other causes.

CONCLUSIONS

On the general basis, therefore, of a group of 3755 cases of pulmonary tuberculosis occurring during a period of thirteen years and observed for not less than ten, and in some cases for more than twenty, subsequent years, it can be stated:—

1. That of those who incur pulmonary tuberculosis, not more than 50 per cent. are able to return to work, even after prolonged periods of treatment.
2. That of those who return there has been a further wastage of about 48 per cent., as a result of recurrent pulmonary tuberculosis or other forms of ill-health, by the end of ten years, the heaviest wastage having occurred in the first six years.
3. That in respect of the incidence amongst them of pulmonary tuberculosis, light manual or clerical indoor workers would appear to have a slight advantage over manual, mainly outdoor workers, and a 10 per cent. advantage in respect of subsequent survival in industry after resumption of duty. It must be remembered, however, in respect of the Post Office, that the years observed have covered a period in which its largest mainly outdoor group, namely postmen, has included from between 30 to 40 per cent. of war-disabled men, a considerably larger proportion than in any other single group.
4. That of cured and arrested cases who survive a period of ten years, the wastage due to recurrent pulmonary tuberculosis or other forms of ill-health at the end of a further five years is reduced to about 14 per cent.

We should like to record our thanks to all those who have assisted in the collection and preparation of the above figures, and particularly to Mr. A. W. Scott of the medical branch of the Post Office.

MEDICINE AND THE LAW

Heart Disease and Sudden Strain

A WORKMEN'S compensation case, illustrating a now established principle, came before the Court of Appeal at the end of October (Hilton *v.* Billington and Newton). Mrs. Hilton's husband had been employed as a lorry-driver. He strained himself last February in frequently cranking up a heavy lorry which had a choked carburettor. Severe pain followed, and also an attack of influenza. After ten days' absence he recovered and went back to work, but he died on April 27th. Post-mortem examination showed the heart to be in a diseased condition, so that a sudden strain might have caused death at any time. When the application came before the Hanley county court, one doctor said that death was directly due to the strain of cranking up the lorry. Hilton's own doctor gave the following evidence of the condition when the patient was about to resume work: "Apparently well recovered when he came to my surgery, but heart irregular, heaving impulse." The deputy county court judge said that the heart strain might have caused death, but it was one of several possible causes and it had not been proved to be the effective cause. The Court of Appeal now says that the county court misunderstood the doctor's evidence. The doctor's evidence meant that Hilton had recovered from the influenza but not from the heart disease; the county court judge went wrong in thinking that the evidence meant that Hilton had recovered from the strain. Lord Justice Slesser pointed out that there was no evidence of the toxic effect of influenza on the patient's heart; the county court judge had overlooked the continuity of the pain up to the time of death. The medical evidence showed that the workman was continuously ill from the day of the strain to the day of his death. There was testimony which justified the inference that the strain was much more than the ordinary strain of work. But the fundamental mistake of the county court judge lay in his having asked himself if the heart strain was or was not the sole cause of death; the true question was whether it did or did not contribute to the death. This principle was laid down by the House of Lords in James v. Partridge, Jones and Co. (1933), where a dipper at some ironworks suffered from angina pectoris.

The Court of Appeal was in doubt at first whether the Hilton case should not be sent back for a new trial. As, however, there was enough material to establish that the heart injury was due to the cranking up of the lorry and had been a contributory cause of death—in the words of the statute, a personal injury by accident arising out of and in the course of the employment—the Court of Appeal awarded compensation to Mrs. Hilton and put an end to the litigation.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

THE NEEDS OF GLASGOW UNIVERSITY

Sir Hector Hetherington, the new principal of the University of Glasgow, has been pointing out that some of the departments require larger staffs and that financial aid is wanted for the permanent equipment and maintenance of the University's work. In addition, there are certain departments, such as those of geography and psychology, which ought to have, not a lectureship, but a full professorship. The new department of chemistry, he told the general council, will not only exhaust all the capital there is in sight, but will add considerably to the ordinary running charges of the University. Glasgow, he said, is the only university in the whole country where benefactions given for scholarships greatly exceed the benefactions given for other purposes. Thus during a period of six years Glasgow received £47,000 for land, buildings, equipments, and endowments, whereas in the same period no less than £130,000 was received for scholarships which, valuable though they are, do not aid the University directly. In contrast to Glasgow, Edinburgh received £300,000 in capital benefactions, and in addition £100,000 in scholarship money.

ANTISEPTICS

Presiding at the Cameron prize lecture delivered in Edinburgh last week by Prof. C. A. Browning of Glasgow, Prof. Sydney Smith remarked that previous holders of the prize include Pasteur, Lister, Behring, Manson, and Ehrlich. Prof. Browning's title was Therapeutical Antiseptics, but he confined himself to the question of chemotherapy and local bacterial infections. In relation to their toxic properties for bacteria, he said, the acriflavine and proflavine compounds were much less toxic for the mammalian body as a whole than substances such as mercuric chloride. The field of chemical substances investigated has been a very wide one. One difficulty has been that when small animals are inoculated either infection does not take place at all or the animal dies. It was found, however, that a good imitation of a human wound infection can be obtained by inoculating guinea-pigs with diphtheria, and in the treatment of such lesions acriflavine has given better results than carbolic acid or saline solution. Likewise in experiments on intraperitoneal streptococcal infections it was found that a considerable majority of animals treated with acriflavine survived, whereas the untreated controls all died. Other observers have inoculated wounds with streptococci and found that treatment with acriflavine and proflavine is more effective than excision of the wound. Prof. Browning holds that these antiseptics act by damaging the virulence of the organisms and that it is not immediate killing of the organisms that is responsible for the cure. The flavines are known to be actively absorbed into the circulation, but experiments have shown that they are not carcinogenic, nor has Prof. Browning found that they inhibit healing process. Blacklock has demonstrated active mitosis in sections of wounds that have been treated with these dyes. Antiseptics cannot be expected to penetrate into the interior of cells or into masses of necrosed tissue and they cannot be maintained in sufficient concentration in the blood to exercise a useful bacteriostatic action there; nor can they be directed to internal organs—with one exception, which is the urinary tract. Acriflavine by mouth or intravenously produces antiseptic urine in which neither *B. coli* nor staphylococci will survive. Intestinal antisepsis has not been obtained. Mellanby tried the effect of acriflavine on transportable mammalian tumour and on transportable fowl sarcoma; the latter, which is believed to be due to a virus, was unaffected, while the former did not grow on transplantation.

IRELAND

(FROM OUR OWN CORRESPONDENT)

THE VICE-PRESIDENT ON SOCIAL SERVICES

ON Oct. 28th Mr. Sean T. O'Kelly, vice-president of the Executive Council of the Irish Free State and also Minister for Local Government and Public Health, addressed the Dublin Chamber of Commerce on "Social Services." He described the expenditure on the school medical service as being, perhaps, the most valuable and productive part of the expenditure on public health. Public affairs, he said, were beset with grave perils which could be averted only by the unflagging pursuit of social justice. He recognised the importance of voluntary effort in regard to social services, and held it necessary that they should flourish side by side with statutory effort. To individual initiative and voluntary effort were due virtually all the social services conducted under the ægis of the State at present. New laws in relation to social services were mere machinery; the driving force must be found in the spirit of the men and women of the country. Speaking of housing, Mr. O'Kelly said that at the beginning of his programme he estimated the housing need as 75,000 houses; up to the present 35,226 had been provided. The curative system of the country in the county and district hospitals and similar institutions was undergoing a real transformation. When the plans as regards hospitals had come to fruition he would claim that as regards hospitals the country would be second to none in the world. Important as were curative measures, preventive measures were still more important. The real hope of improving adult health and physique lay in attacking invalidity at its source in childhood. The results of such services could not be seen in a day, but in years to come their value would be apparent in the diminution in invalidity and mortality. He quoted some of the findings in the school-children inspected in the city of Dublin last year. The number inspected was

17,011; of these, 50 per cent. were found suffering from dental defects, 23 per cent. from troubles of the nose and throat, 24 per cent. from eye troubles or defective vision, 3 per cent. from ear defects, and 17 per cent. had various other defects or disorders.

AUSTRIAN SOCIETY FOR RÖNTGENOLOGY AND RADIOLOGY

(FROM OUR VIENNA CORRESPONDENT)

THIS society, which was founded only about eighteen months ago, held its first congress in Vienna early in September last. The three chief subjects chosen for discussion were: (1) *X rays in relation to* symptoms and organic function, which was presented by Loeb (Graz); (2) clinics and methods of X ray cinematography, presented by Dessauer (formerly in Berlin, now in Istanbul); and (3) principles and development of röntgentherapy, its methods and its biological basis, by G. Schwarz (Vienna). The introductory address was delivered by Prof. Freund, the veteran pioneer of X ray therapy.

MAIN DISCUSSIONS

In the first discussion Loeb and Schüller discussed methods of cerebro-spinal X ray examinations, which have been developed lately by means of contrasting fluids. Prof. Löhr (Magdeburg) reported on his observations of brain injuries elucidated by X rays. Within the last four years he has seen 900 cases. He is a staunch supporter of arteriography of the brain, on grounds that it enables the surgeon and the neurologist to obtain excellent information in a very early stage of the pathological condition. Dr. Dyes (Würzburg) said that the diagnosis of brain tumours by X rays is sometimes very satisfactory. Tumours of the lower and posterior half of the posterior cerebral fossa produce a dilatation of the fourth ventricle, whilst in cases situated in the anterior and upper half this ventricle is not affected but the other three ventricles show a distension. In tumours of the convexity, or of the temporal region, the surgeon also obtains a valuable aid to diagnosis by using X rays. Nollé (Bonn) and Zdansky (Vienna) recorded a study of the variations of the volume and size of the heart under different conditions of strain and respiration. Increase in size might be apparent for days after effort, without doing any permanent harm. An interesting paper was contributed by Becchini (Salerno) on antiperistalsis in the normal œsophagus, and by Aprile (Rome) on the same subject. Among many papers on the stomach and the intestinal canal, an outstanding one was that by Pape (Vienna) on the desirability of exact investigation of the colon and the lower portions of the intestinal canal by irrigoscopy and air-filling, which offer excellent opportunity for gaining rapid information on motility, structural changes, and the function of this part of the gut. Hryntschak and Merio, both from Vienna, and Reimann (Prague) presented instructive papers on urography, and Simon discussed functional changes in the urinary organs and the lower intestinal canal caused by gestation. The constipation and the ileus of pregnant women, as well as the pyelitis of gestation, could be readily explained by the mechanical conditions due to the growing uterus, as shown by X rays. An extensive report on röntgenology applied in gynæcology was delivered by Claude Béclère (Paris).

Indirect cinematography, which has been developed so far that one can now obtain 25–50 films per second, was discussed by Janker (Bonn), whilst Reynolds (London) showed wonderful films of the breathing lung, the beating heart, of the œsophagus and the stomach during swallowing, and finally a film with an experimentally produced embolism on a living animal. Reynolds pointed out that his method allows the study of living organs in motion, without endangering the patient by a protracted exposure to the effects of X rays. Van de Maele (Brussels) demonstrated the apparatus and method of direct X ray cinematography and a series of films of diseased organs not suitable for examination by indirect cinematography—e.g., the gall-bladder, the pyloroduodenal region, and the renal pelvis.

The principles, development, and biological basis of X ray therapy were expounded by G. Schwarz, the opener, in a splendid paper with a historical review of the subject.

OCCASIONAL COMMUNICATIONS

Apart from these discussions important papers were communicated on irradiation at one sitting by Wintz (Erlangen); satiation therapy by Holfelder (Frankfort); fractioned or fractioned-protracted irradiation of cancers by Coutard (Paris); irradiation of primary pulmonary cancer by Popovic (Agram); X ray treatment of brain tumour by Sgalitzer (Vienna); irradiation of tumours by currents of extremely high tension by Gunsett (Strasbourg); long-distance irradiation by Sluys (Brussels); contact treatment by Schaefer (Greifswalde); Schaefer's method in cancer of the uterus by Weibel (Vienna); treatment of tumours and other conditions with radium by Niedermayer (Linz) and Schönbauer (Vienna).

Wessely, from the clinic formerly under Hajek and now directed by Neumann, spoke strongly in favour of Coutard's treatment of cancer of the larynx, pharynx, and throat, wherever possible. Wieser (Vienna) uses weak irradiation in chronic inflammations of brain tissue and nerves, and Goedel (Vienna) has obtained excellent results in cases of acute mastitis (100–150 r) within three to four days. Mayer (Vienna) and Uhlmann (Constantinople) discussed the use of radon, which gives good results in ulcers caused by X rays.

A number of papers dealing with the theory of radiology was presented to the congress by students from Holland, Germany, and Austria. Among papers on the irradiation of the reticulo-endothelial system, one by Windholz (Vienna) claimed that most of these tumours respond readily to the application of X rays.

Prof. Freund (Vienna) pointed out that professional damages to radiologists are less frequent, owing to the precautions taken nowadays. Careful control of the blood gives a good criterion of the worker's condition. Natural or artificial sunlight and gymnastics are useful adjuncts in keeping them well, and raw milk, liver, kidney, and brain should supplement the dietary of all X ray workers, staff and nurses.

GUY'S HOSPITAL.—Guy's Hospital is to increase the number of its maternity beds from 21 to 49. This change, which will be carried out within the next month, has been made possible by the rearrangement of beds in the medical block of the hospital. Like the original 21 maternity beds, the 28 which are to be made available for this special service will be free beds, for either normal or abnormal cases.

THE NEW WESTMINSTER HOSPITAL

Lord Wigram and the Speaker of the House of Commons were on the platform on Monday afternoon when Mr. Bernard Docker made a final appeal for £250,000 to complete the building fund of the new Westminster Hospital. The foundation-stone of the hospital was laid in June, 1935, by the present King, then president of the hospital, and the appeal was made from the shell of the first building to be erected. This is the nurses' home which gives upon a wide terrace overlooking St. John's Garden, a public open space within sight of Westminster Abbey and the Houses of Parliament. Mr. Docker drew attention to some of the features in the planning of the hospital[1] which will remove old-standing grievances about the treatment of hospital patients. Not of course that there is much to be said against the work that is done at any great London hospital; criticism has been directed mainly against the conditions under which that work is done, and these press as hardly on the staff as on the patients. The new Westminster Hospital has twice the ground space of its predecessor, and as the hospital will rise to a greater height this will provide space for many amenities. The room in which accidents and emergencies are received will be so arranged that no patient need see others in suffering. Adjacent to each ward there will be a separate room to which moribund patients can be removed, and on each ward floor will be provided a sitting-room for anxious visitors summoned to attend by day or night in critical cases. The out-patient department will be roomy enough to provide for prompt and complete classification. New out-patients will go to a clearing station where they will be rapidly examined by full-time medical officers, and then transferred at once for detailed examination or immediate treatment to the proper department on a higher floor. All patients, whether ward patients or out-patients, will come under the particular medical and nursing administration responsible for that disease or injury, thus ensuring continuity of treatment and interest. The bulk of out-patients will have appointment cards for the appropriate hour and place of their visit. These features are all logical developments of what is aimed at elsewhere when space is available, but one feature of the hospital is perhaps unique. There is a covered road, 24 feet wide, traversing the hospital from Horseferry-road to Page-street with a pavement on each side like an alimentary canal. This will give warm and snug access to the seven separate entrances by which the hospital is approached. Not only will it facilitate the access of doctors, nurses, patients, and technical staff to their respective sections, but ambulances will in future transfer patients under cover instead of exposing them to outside weather conditions. It is a sign of the times in which we live that this covered road will serve another purpose now regarded as essential in a district of London specially liable to attack by air. At either end of the covered road it will be possible to erect at short notice double doors constituting an air-lock within which gas victims can be cleansed from contamination and so transferred to the hospital for shelter and treatment. Throughout the hospital windows will be made of a material to protect patients as far as possible from the risk of splintered glass, and all the rooms below a certain level in each wing will be supplied with fresh air from an air-conditioning plant. The new Westminster, said Mr. Docker, is entitled to be called "the first gas-proof hospital."

NUTRITION IN THE COLONIES

LAST April a circular dispatch was sent by the Secretary of State for the Colonies to all British Colonial Dependencies, in which he invited particular attention to the steps that might be taken to promote the application in the Colonial Empire of modern knowledge of nutrition. The Prime Minister has now appointed a committee of the Economic Advisory Council which will review the replies received to this dispatch and make recommendations about the action to be taken upon them. This committee, which will also advise generally how best to promote the discovery and application of knowledge in this field, is to meet under the chairmanship of Earl De La Warr (Parliamentary Under-Secretary for the Colonies), and its fourteen other members include Dr. E. P. Cathcart, F.R.S. (regius professor of physiology at Glasgow); Dr. J. M. Hamill (a senior medical officer of the Ministry of Health); Dr. Edward Mellanby, F.R.S. (secretary of the Medical Research Council); Sir John Orr, F.R.S. (director of the Rowett Research Institute); and Sir Thomas Stanton (chief medical adviser to the Secretary of State for the Colonies).

In the circular dispatch, which is now published for the first time (price *2d.*), Mr. J. H. Thomas, then Colonial Secretary, spoke of the great potentialities of improved nutrition—affecting not only public health but also the economic and agricultural problems of the day. "For instance, if in the United Kingdom alone the average consumption of milk a head a week increased from its present low level of 2¾ pints to 4 pints (a figure still well below what medical opinion regards as adequate), not only would the health of the nation be very greatly improved but also it has been estimated that it would be necessary for 800,000 more cows to be kept—with results which would be far-reaching to agriculture not only in this country but in the Dominions and the Argentine and indeed throughout the world." From the public health aspect, he continued, there can be little doubt that every part of the Colonial Empire would benefit from an improved nutrition of its peoples, while from the economic and agricultural aspect increased attention to dietetic needs might well lead to an amelioration of some of its local economic problems. Important work was being done in Nigeria, the Straits Settlements, Uganda, and elsewhere, but some of the knowledge gained went unrecorded or was inaccessible, while in some Dependencies medical knowledge might not be fully reflected in agricultural, veterinary, educational, and other aspects of government policy. Recommending a comprehensive survey of the situation in each Dependency, Mr. Thomas remarked that although there could be no sudden change of dietary habits the alteration of European diets during the past fifty years showed that there was nothing immutable about them, and that they were determined less by choice and instinct than by economic necessity. Finally, in reviewing the agencies that can be employed in making useful changes, he pointed out that the tariffs of Colonial Dependencies ought to be framed in such a way as to encourage the consumption of valuable foodstuffs. "Often it happens that those articles which are of high nutritive value are among those contributing most highly to customs revenue."

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[1] Described by Mr. Rock Carling in THE LANCET, 1935, ii., 1314.

CORRESPONDENCE

THE CLASSIFICATION OF PULMONARY TUBERCULOSIS

To the Editor of THE LANCET

SIR,—The leading article in your issue of Oct. 24th (p. 990) on Dr. F. J. Bentley's report on artificial pneumothorax in L.C.C. hospitals directs attention to the problem of classification of cases of phthisis; it is to be hoped that this problem will now receive further attention. Dr. Bentley, for lack of any group of patients strictly comparable with those who have received pneumothorax treatment, has perforce to choose as his control the whole of the patients treated in a year under the L.C.C. scheme, arranged in the usual four classes. This is indeed a serious criticism of the official classification. As a result his observations give a picture of the value of pneumothorax treatment in attacking the whole problem of tuberculosis in London for the years investigated, but provide no help for the clinician faced with a patient apparently suitable for the treatment, who would wish to know results in similar cases. Of 677 cases investigated by Dr. Bentley, *510 were in Group B.2, an ill-defined collection of* those who are not in B.1 or B.3. Thus for most of his patients we have only a vague picture of their clinical condition. Even your approval of the present separation of T.B minus and T.B. positive cases is open to criticism, for the label T.B. minus may depend on the enthusiasm of the physician in applying refined methods of examination such as sputum concentration and culture or gastric lavage.

The more extended use of modern methods of investigation, especially of radiography which reveals occult cavities and makes clear different types of disease, calls for a scheme of classification better adapted to its use than the present which is based on physical signs. Tuberculosis workers will hope that steps may be taken soon to meet this need.

I am, Sir, yours faithfully,
F. A. H. SIMMONDS.

County Sanatorium, Clare Hall, South Mimms,
Barnet, Herts, Oct. 30th.

BACTERIOLOGICAL GRADING OF MILK

To the Editor of THE LANCET

SIR,—Owing to absence from home, I have only now been able to give attention to the annotation, on the bacteriological grading of milk, in your issue of Sept. 26th, when you published my letter on the subject.

I do not, as you state, contend that "in spite of the favourable conclusions recorded in the recent report published by the Medical Research Council, this (the methylene-blue) test is inferior to the plate count and the coliform test." I have no knowledge of research and I do not pretend to know anything about the scientific side of the work. I look upon the subject from the point of view of the practical producer of clean milk.

When the Ministry of Health proposed in their Draft Order of Jan. 24th, 1936, to abolish the coliform test, I made these experiments out of pure curiosity to find out whether it was a fact that the methylene-blue test would be as safe a test for milk as the old plate count and coliform test. To my surprise, I found that the methylene-blue test did not indicate the presence of *Bacillus coli*, even when manure had been deliberately introduced. It is entirely owing to my experiments that the Ministry of Health decided to reinstate the coliform test.

Prof. Wilson's summary of the results of the thirteen samples tested by him is misleading, for he bases his conclusions on a keeping-time of 8½ hours (winter standard), whereas mine dealt entirely with the standard prescribed by the Ministry of Health in their Draft Order of Jan. 26th—i.e., 5½ hours in winter and 4½ hours in summer. The report of the Medical Research Council may have recommended a keeping-time of 8½ hours in winter, but the fact remains that this is not the standard laid down by the Ministry of Health, and it was upon the conditions prescribed by their Draft Order of Jan. 26th that my arguments were based. On the 13 samples sent 10 would have passed the standard prescribed by the Ministry of Health in their Draft Order published on Jan. 26th.

I have never attempted to criticise the methylene-blue test itself, as I do not pretend to have sufficient knowledge to enable me to do so. What I did criticise was its adoption by the Ministry of Health with a keeping-time of 5½ hours in winter and 4½ hours in summer—coupled with the abolition of the coliform test—as a standard for really clean milk.

Another serious disadvantage of the keeping-time of 5½ hours is that the conscientious producer has no knowledge of the actual standard of his milk—i.e., he does not know whether it has passed the prescribed standard without anything to spare, or whether it would perhaps have kept eight or ten hours. In other words, he does not know whether his methods of production are such as to give him a good margin of safety, or whether he is close to the danger line. With a bacteria count of 30,000 one always knew where one stood. For instance, the average of the bacteria counts taken of my milk by the Ministry of Health during the last twelve months is 3190, with no *B. coli*, which means that I know that my methods are resulting in a high standard. Under the old Order if a producer received from the Ministry a report that his milk showed a bacteria count of say 29,000, he would know that something was wrong somewhere, and he would endeavour to ascertain where the weakness might be. Under the new test he is working more or less in the dark; all he knows is that his milk has passed the prescribed standard, and he has no idea by what margin it has passed.

I am, Sir, yours faithfully,
L. A. FOOT.

White Hill, Berkhamsted, Herts, Oct. 28th.

P.S.—My last report from the Ministry of Health has just come through, it is 1990 with no *B. coli*. I am now allowed 200,000, so that I know I will be *well* within the margin.

VITAMIN DEFICIENCY AND CHRONIC GLAUCOMA

To the Editor of THE LANCET

SIR,—The following case may be of interest to some of your readers.

A professional man, aged 64, had lived from youth onwards on a diet which was probably deficient in vitamins and protective substances. He is visceroptotic but enjoyed good health, and lived a life of full mental and physical activity until 1915 when he developed acute colitis. He suffered from diarrhœa with blood (at times) and mucus in the motions for several months, and thereafter intermittently for several years; all roughage was excluded from the diet which was limited to white bread, milk (boiled) and milk products, meat, and orange juice. This diet was continued until 1928. The diagnosis of hypovitaminosis was then made and confirmed by Dr. J. A. Nixon of Bristol. He looked ill. The skin of the backs of the hands and fingers was rough and covered by a fine branny desquamation and by many keratoses, two of these hyperkeratoses, and the others freckle-like. On the skin of the forehead were many small keratoses and one hyperkeratosis. The tonsils, which were small and fibrotic and of the existence of which he had hitherto not been conscious, now became the seat of follicular distensions and discomfort. Cod-liver oil and dried yeast were now added to the diet which was made more generous so as to include all classes of foodstuffs and protective substances. A year and more was necessary to obtain tolerance for cod-liver oil and some other additions to the diet.

The teeth had always been well cared for and looked sound, but in the few years before 1928 several had been removed with apical sepsis. Early in 1930 the first symptom of chronic glaucoma was noticed in the left eye. The disease proved to be very slowly progressive, and therefore had probably existed before 1930. The left eye was operated on by Mr. Arthur Walbank of Bristol in June, 1932. Mr. Walbank has seen and examined the patient repeatedly since then, the last occasion being two months ago, and has failed to find any sign of glaucoma in the right eye.

The period of greatest vitamin deficiency was 1927 and 1928. For many years past and up to the present sepsis has been present, always in the colon, and until last year in the teeth. Two teeth with obvious apical sepsis, proved bacteriologically, were removed within three months before the glaucoma operation. At varying times until last year the thirteen remaining teeth were removed, several having apical infection.

Attention seems of late to have been concentrated on sepsis in the causation of glaucoma. The glaucoma in this case arose at the time when hypovitaminosis was marked and, contrary to the usual rule that it is a bilateral disease, an expert ophthalmologist has been unable to find any sign of the commencement of the disease in the other eye six years after its commencement in the first eye. This period of six years was a period in which sepsis was present, and it was a period of great improvement in the general health and the disappearance of the signs of vitamin lack. Of the three hyperkeratoses two were removed surgically during the years of hypovitaminosis, and the third disappeared spontaneously in 1929–1930. The skin of the dorsa of the hands is now smooth and healthy looking, and has two or three small atrophic patches in place of the freckle-like keratosis. The keratoses have entirely disappeared from the forehead. A consideration of this case suggests the possibility that hypovitaminosis, damaging the integrity of the endothelial cells of the effluent drainage channels of the eye, may be a cause of chronic glaucoma.

I am, Sir, yours faithfully,

Bridgwater, Oct. 30th. BRUCE C. KELLY.

NATIONAL RECOGNITION OF VOLUNTARY HOSPITALS

To the Editor of THE LANCET

SIR,—While thanking you cordially for your kindly reference in an annotation last week (p. 1051) to my paper read to the Medico-Legal Society, may I comment upon one point. The objection during the discussions upon the Paying Patients Bill to give further departmental control was well founded. It is a measure dealing with one portion of hospital work and the subsection which you quote contains a detail which is outside normal legislative procedure. No doubt there are precedents, but English Acts of Parliament usually leave such matters to be dealt with by departmental schemes and orders. The proposal that the voluntary hospitals should receive national recognition is in an entirely different category. There is general agreement that they are an important part of a national service. The representatives of the Scottish voluntary hospitals pressed the point before the Scottish Health Services Committee who, although they were not willing to concede all the proposals to give expression to it, supported the principle. If the contention is sound in Scotland what reason is there why it is less valid in England? The medical schools are already the concern of a national body. It is difficult to find a point of view from which objection can be made to applying the same principle to the hospitals. There is no need to wait until the voluntary hospitals have reached the position of the voluntary schools before Parliament embodies the principle in the law of the country. Rather would it seem to be sound statesmanship to maintain their position. Supporters of voluntary hospitals who are also railway shareholders may doubt whether your, not my, analogy is an encouraging one. The proposals of the Scottish Health Services Committee seem to present, with the authority of a strong and well-informed body, a more hopeful method of dealing with the present position in England as well as in Scotland.—I am, Sir, yours faithfully,

C. E. A. BEDWELL,
House Governor, King's College Hospital.
Denmark-hill, S.E., Nov. 2nd.

THE TREATMENT OF PLEURAL EFFUSIONS

To the Editor of THE LANCET

SIR,—At the meeting on Oct. 27th of the section of medicine of the Royal Society of Medicine, Dr. Burton Wood, while appearing to agree that pleurisy with effusion is a manifestation of tuberculosis, stated that he was not in favour of exposing cases of pleural effusion to further infection, adding (according to your report) "in a sanatorium for example." May I protest emphatically against the implications of that statement. Sanatorium physicians have been gratified that during the last decade general practitioners have come to recognise more and more the tuberculous nature of pleurisy with effusion and the need for treatment by the sanatorium régime. Whether the percentage of such cases which eventually develop phthisis is from 40 to 50 or, as Dr. Burton Wood seems to suggest, only 10, the consequences are too serious to justify sending any but the slightest and most favourably situated cases elsewhere than to a sanatorium.

Why should it be necessary to assume exogenous infection in a patient who is carrying tubercle bacilli, probably in large numbers, on the surface of his own lung? Why suspect a sanatorium or tuberculosis hospital of infecting one patient from another when it is recognised to be a rare occurrence for one of the nursing personnel to develop phthisis by infection from a patient? The dangers of the course advocated by Dr. Burton Wood are illustrated by a patient who has just come under my care.

A man, aged 22, caught "cold and influenza" early last January. He had a cough and slight blood staining of his sputum. On Jan. 25th he was admitted to the chest hospital of which Dr. Burton Wood is a physician (although not under his care) and was found to have a pleural effusion. This was aspirated and replaced by air on several occasions, and at the end of two to three months the man was sent for six or eight weeks to a convalescent home. On returning he attended the same hospital as an out-patient until September, when he was readmitted with tubercle bacilli in his sputum and an apical cavity which seems likely to defy an ineffective pneumothorax.

Would anyone suggest that this man had been infected in the convalescent home or in the out-patient department of the hospital. It is, I think, fair to ask whether this patient exposed his fellow patients in the convalescent home to any risk of infection with tuberculosis. Would it not have been better to treat this pleural effusion as an early stage of tuberculosis of the lungs and to send him to a sanatorium instead of to a convalescent home?

I am, Sir, yours faithfully,
JAMES WATT.

King George V Sanatorium, Godalming, Nov. 2nd.

To the Editor of THE LANCET

SIR,—As your condensed report of a rather unfortunately phrased expression of mine at the recent meeting of the Royal Society of Medicine, at which the treatment of pleural effusions was debated, may give a wrong impression I shall be obliged if you will allow me to correct it. My remarks, as quoted, seem to imply that a sanatorium may be a dangerous place for an adolescent suffering from an uncomplicated pleural effusion. My object was to suggest that a patient possibly already in a hypersensitive condition to tuberculous infection should not share a sanatorium cubicle with a "bacilliferous" case. Though I should prefer to treat pleural effusions of this type in a "preventorium" (to borrow an American term), the only institution which offers adequate supervision and treatment for the working-class boy or girl is the sanatorium. All that I claim is that even in a sanatorium patients suffering from consumption should not be brought into intimate contact with non-infectious cases. This rule is already observed in institutions which admit both pulmonary and surgical cases. I am, Sir, yours faithfully,

Devonshire-place, W., Nov. 3rd. W. BURTON WOOD.

AN EMPIRE RHEUMATISM COUNCIL

THE Empire Rheumatism Council, whose object is to organise research throughout the British Empire into the causes and means of treatment of rheumatic disease, was constituted last week at a meeting held in the house of the Royal Society of Medicine, at which Lord Horder presided. The Duke of Gloucester, it was stated, had accepted an invitation to be president of the council.

Lord Horder, who was unanimously elected chairman of the council, remarked that more knowledge about the origins and means of treatment of rheumatic disease was urgently needed. This could be attained only by a comprehensive and coördinated research campaign for carrying on which they would seek to enrol the forces of medical science and the help of prominent citizens throughout the British Empire. Rheumatic disease was one of the most serious afflictions of mankind. It exacted a cruel toll on the lives, on the comfort, and on the earning capacity of the community. In Great Britain it was responsible for one-sixth of the total payments necessary under the National Health Insurance Act. Taking into account its ravages among all classes of the community it was probably responsible for one-fourth of the total loss to the community from illness. In the preliminary negotiations for the constitution of the council he had been encouraged to hope for a full degree of success for its work by the enthusiastic support of the medical profession, and by the assurances of help from the industrial leaders of the nation, from the trade-unions, the friendly societies and similar organisations.

The following officers were elected:

Vice-Presidents.—The Earl of Harewood; Lord Hirst of Witton; Mr. J. Spedan Lewis; Sir Henry McMahon; Sir Humphry Rolleston, M.D.; Mr. H. Gordon Selfridge.

Vice-Chairman of Council.—Sir Wiliam Willcox, M.D.

Trustees.—Sir William Willcox; Mr. A. G. Timbrell Fisher, F.R.C.S.

Executive Committee.—Lord Horder; Sir William Willcox; Dr. W. S. C. Copeman; Mr. Timbrell Fisher; Lieut.-General Sir Harold Fawcus, M.B.; Dr. H. B. W. Morgan; Mr. Spedan Lewis; Dr. M. B. Ray.

Scientific Advisory Committee.—Lord Horder; Sir William Willcox; Dr. Copeman; Mr. Timbrell Fisher; Dr. F. J. Bach; Dr. C. W. Buckley; Dr. Fortescue Fox; Prof. F. R. Fraser, M.D.; Dr. M. H. Gordon, F.R.S.; Dr. Geoffrey Holmes; Dr. A. A. Moncrieff; Dr. G. D. Kersley; Dr. E. P. Poulton; Sir Humphry Rolleston; and Dr. E. C. Warner.

Hon. Medical Secretary.—Dr. Copeman.

Organising Secretary.—Sir Frank Fox.

Temporary offices will be opened at 1, Mitre Court Buildings, Temple, London, E.C.4.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Lt. R. W. G. Lancashire to *Drake* for R.N.B.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Lt. (D) F. E. D. Hallon promoted to Surg. Lt.-Comdr. (D).

ARMY MEDICAL SERVICES

Col. F. D. G. Howell, D.S.O., M.C., honorary surgeon to the King, deputy director of medical services at Army Headquarters, India, has been selected for promotion to the rank of major general from March 1st, 1937, and to be deputy director of medical services, Headquarters, Aldershot Command, in succession to Maj. Gen. T. S. Coates, O.B.E., M.B., *honorary physician to the King*, who is retiring on retired pay.

Col. H. H. A. Emerson, D.S.O., M.B., director of hygiene at the War Office, will be promoted to the rank of major general (supernumerary), with effect from March 26th, 1937, and will continue in his present appointment.

Col. J. W. L. Scott, D.S.O., honorary physician to the King, deputy director-general Army Medical Services at the War Office, has been selected for promotion to the rank of major general from March 26th, 1937, and to be deputy director of medical services, Headquarters, Eastern Command, in succession to Maj.-Gen. FitzG. G. FitzGerald, C.B., D.S.O., honorary surgeon to the King, who will vacate the appointment on completion of four years as a major general.

ROYAL ARMY MEDICAL CORPS

Short Service Commissions: Lts. to be Capts.: M. H. P. Sayers, D. P. Stevenson, S. Brown, P. B. Hanbury, G. A. E. Harman, G. A. Weir, H. N. Perkins, J. D. Cruickshank, P. J. Geoghegan, W. N. J. Clarke, A. H. T. F. Fullerton, and T. D. M. Martin.

ARMY DENTAL CORPS

Applications are invited for dental surgeons for appointment to 12 commissions in the Army Dental Corps, Candidates will be selected for these commissions without competitive examination and must be not over the age of 28. Successful candidates will be given short-service commissions for six years, at the end of which period they may either retire with a gratuity of £1000 or apply for permanent commissions. Full particulars and form of application may be obtained from the Director, Army Dental Service, War Office, London, S.W.1.

TERRITORIAL ARMY

Capt. J. T. McOuat to be Maj.

Lt. G. J. V. Crosby, from 5th Bn. Leicester R., to be Capt.

ROYAL AIR FORCE

Squadron Leader A. Harvey to Directorate of Medical Services, Air Ministry, for Staff duties.

Squadron Leader Andrew Harvey, M.B., B.Ch., B.A.O.Belf. 1924, was appointed Squadron Leader in October, 1934, and to the Central Medical Establishment, London, in February, 1935.

INDIAN MEDICAL SERVICE

Lt.-Col. J. B. Hanafin, C.I.E., retires.

Capts. to be Majs.: A. Rosenbloom and C. A. Bozman.

(Continued at foot of opposite page)

OBITUARY

SHEFFIELD NEAVE, M.R.C.P. Lond.

Dr. Sheffield Neave, who died on Oct. 24th in a London nursing-home at the age of 83, was a naturalist and sportsman who took up medicine in middle life. The eldest son of Sheffield Neave, a director of the Bank of England, Sheffield Henry Morier was born at Hampstead, educated at Eton and at Balliol College, Oxford, where he took a second class in natural science; and it was not until he was 40 that he entered St. Bartholomew's Hospital as a student. He had been attracted to medicine all his life, but the feeling in his family was against it. In the meantime he had become master of the Essex staghounds as his father had been before him. He took seven years to obtain the conjoint diploma, but went on to gain the M.R.C.P. only two years later. He held a house appointment at the Royal Free Hospital and assisted in the throat department at St. Bart.'s, then becoming pathologist at Great Ormond-street; but he was soon able to combine his new pathological interest with his natural bent by an appointment as travelling pathologist and naturalist to the Wellcome Research Laboratory at Khartoum. This was followed by some work on sleeping-sickness in the Katanga region of the Congo. When this was completed he became assistant physician to the Queen's Hospital for Children, Hackney-road, retiring in 1913, but rejoining the staff in 1914 after the war had drawn away some of his juniors, and he remained on the hospital board of management all his life. With the naturalist's eye for small variations from the normal he was especially good at diagnosis. During the war Sheffield Neave held a commission in the R.A.M.C., and made a characteristically careful investigation of an outbreak of cerebro-spinal fever occurring in East Suffolk. But after that formal medicine did not play a large part in his life, although he read widely and kept himself informed of the latest advances. Being a man of financial ability he was on the directorate of a number of trading companies; he was a good all-round sportsman, a great fisherman, and a successful farmer. Dr. Neave married in 1878 Gertrude, daughter of Julius Talbot Airey, who died last year. He leaves two sons and two daughters; the elder son who bears his name is assistant director of the Imperial Institute of Entomology.

DR. SHEFFIELD NEAVE

[*Photograph by Elliott and Fry*

(Continued from previous page)

Capt. K. B. Gore relinquishes his temp. commn.

Lt. E. N. Brockway relinquishes his prob. appt.

Indian Medical Department.—Sub-Maj. and Hon. Lt. Kartar Singh to be Hon. Capt.

DUNCAN ALEXANDER McCOMBIE, M.B., C.M. Aberd.

PATHOLOGIST TO THE LONDON HOMŒOPATHIC HOSPITAL AND TO THE HOSPITAL FOR DISEASES OF THE SKIN, BLACKFRIARS

Dr. Duncan McCombie, who died in London after an operation on Oct. 25th, was the eldest son of Alexander McCombie of Aberdeen. He was born in Bombay in 1868 and educated at Aberdeen grammar school and university. His father's death when he was only 12 years old had a far-reaching influence on his career; for though he was able to study medicine and take one house appointment at the Royal Infirmary, Aberdeen after qualifying in 1892, he decided for family reasons to abandon any idea of scientific medicine and to enter general practice at the first available opportunity. He became assistant to a doctor in the East End of London and worked in the Commercial-road in this capacity and later as junior partner for 18 years. During this period he became interested in dermatology, especially its pathological aspect, and spent as much of his time as he could spare doing voluntary pathological work at the Hospital for Diseases of the Skin, then at Stamford-street. When he left the East End he practised in partnership in Lavender Hill, S.W., for a few years, and in 1919 decided to give up general practice and devote himself to the specialty that interested him. He was made pathologist and surgeon to the V.D. department of the skin hospital, now moved to Blackfriars, and clinical assistant to the V.D. department of the London Hospital. During this period of his life Dr. McCombie went back to the study of advanced anatomy and physiology with a view to taking his F.R.C.S., of which he passed the primary examination and attempted the final. It was, however, impossible for him to devote enough time to this work, and he reluctantly gave it up and with it any intention to compete for an honorary staff appointment at the hospital. In 1925 he took for a short period a temporary appointment in the pathological department of the Welsh National School of Medicine, and in the same year was made pathologist to the London Homœopathic Hospital, a post which he held jointly with that of pathologist to the Hospital for Diseases of the Skin at the time of his death. Prof. E. H. Kettle, F.R.S., writes: "Duncan McCombie was a modest self-effacing man whose wide scientific interests and range of special pathological knowledge were apparent only to his few intimates. He was always absorbed in the problems arising from his work, and though his hospital appointments were officially supposed to take up only part of his time it was seldom indeed that he was not to be found in one or other of his laboratories. He retained all his life not only high standards but the fresh enthusiasm which often passes with the years, and this quality, with his generous outlook and receptive mind, made it difficult to credit his age. He was one who never considered his own interests but only the work to be done."

Dr. McCombie married in 1914 Helen, second daughter of the late Sir John Craggs, M.V.O., for long joint hon. secretary of King Edward's Hospital Fund; she survives him with two young children.

MIDDLESEX HOSPITAL.—On Oct. 28th a bed which has been endowed by nine leading dressmaking firms was dedicated in the dressmakers' ward of this hospital.

MEDICAL NEWS

University of Oxford

The Rolleston memorial prize has been divided between B. G. Maegraith and J. A. Moy-Thomas. The essay sent in by M. L. R. Pettersson was "of considerable merit."

University of Cambridge

On Oct. 31st the following degrees were conferred :—

M.B., B.Chir.—L. I. S. Campbell.
M.B.—J. F. Dow and J. R. Bodington.
B.Chir.—* J. G. Warren and H. A. Hamilton.

* By proxy.

Dr. J. F. Brock, late medical first assistant at the British Postgraduate medical school, has been appointed assistant director of research in medicine for five years. Dr. J. S. Baxter a university demonstrator in the department of anatomy for three years.

Royal College of Physicians of London

At a comitia of the college held on Oct. 29th, with Lord Dawson, the president, in the chair, Prof. G. W. Watson, Mr. Eardley Holland, Prof. J. A. Ryle, Dr. Edward Mellanby, and Sir Arthur MacNalty were elected councillors. Dr. Arnold Stott was appointed an examiner in medicine to the conjoint board, and Dr. Adolphe Abrahams, a member of the committee of management of the board. Sir Comyns Berkeley was re-elected a representative of the college on the Central Midwives Board, and Sir William Willcox a representative on the Poisons Board. The president announced that Dr. B. E. Schlesinger had been appointed Milroy lecturer for 1938 and that the Jenks memorial scholarship had been awarded to Stanley Mitchell Sangster, late of Epsom College.

The following candidates were admitted to the membership of the college :—

Thomas George Armstrong, L.R.C.P. Lond., Pranatharthihara Arunachalam, M.D. Madras, Abdel Aziz Mohammed Askar, M.B. Cairo, [illegible] Lond., Ernest Robert Beech, M.B [illegible] Buckley, M.B. Oxon., William Howard Pinney Cant, M.D. Lond., Lewis Cherniack, M.D. Manitoba, John Peto Child, M.B. Oxon., Mustafa El-Diwany, M.B. Cairo, Thomas Neilson Fraser, M.B. Glasg., Jaharlal Ghosh, M.D. Calcutta, William Hewitt Gillespie, M.D. Edin., Louis Glick, M.B. Leeds, Ian Gordon, M.B. Aberd., James Wallace Graham, M.D. Toronto, George Dickinson Hedley, L.R.C.P. Lond., Ernest Henry Rhys Harries, M.D. Lond., [illegible] son, L.R.C.P. Lond., John Vernon [illegible] as Ellis Jones-Davies, L.R.C.P. Lond., [illegible] erp., John Joseph Herbert Lowe, [illegible] cIlroy, M.B. N.Z., Shiva Saran Misra, M.D. Lucknow, Annie Mildred Mocatta, M.B. Melb., Joseph [illegible], Jamnadas Chaturbhai Patel, [illegible] y Allan Perry, L.R.C.P. Lond., [illegible] Witwa [illegible] mer S [illegible], Arthu [illegible] Smith, [illegible] ydney [illegible]. Lond [illegible] Gladys Ward, M.D. Edin., Leonard Ro[illegible]

Licences to practise were conferred upon 143 candidates (122 men and 21 women) who have passed the final examination of the Conjoint Board, and have complied with the by-laws of the College. The following are the names and medical schools of the successful candidates :—

P. A. Allsopp, Middlesex; D. A. Anderson, Camb. and St. Thos.; H. E. Anderson, Liverp.; G. S. Arnold, Lond.; W. K. Badgett, Middlesex; Kathleen R. Barker, Roy. Free and West Lond.; H. B. Basu, Calcutta and St. Bart.'s; H. M. S. G. Beadnell, Cardiff and Guy's; A. G. Bellamy, Camb. and St. Thos.; D. W. Bentinck, Camb. and Middlesex; Vivien H. M. Bisley, Roy. Free; M. L. Biswas, Calcutta and West Lond.; Irene B. Black, Roy. Free; Doris M. H. Boon, Halifax Roy. Infirmary; A. C. Brewer, Liverp.; L. D. Brice, Manch. and Westminster; A. E. Burjony, Durh. and West Lond.; R. L. Buttle, Westminster; J. H. Cater, St. Mary's; J. E. Cates, St. Bart.'s; T. S. Cave, Camb. and King's Coll.; A. A. Chawdhery, Punjab and Birm.; Agnes C. Clark, Camb., Roy. Free, and West Lond.; T. K. Cooke, Leeds; N. Crosby, Guy's; I. H. Davies, Middlesex; T. S. Davies, Westminster; J. G. B. De Vine, St. Bart.'s; Sarah Dolinsky, Roy. Free and West Lond.; C. D. Donald, Melb.; K. W. Donald, Camb. and St. Bart.'s; F. S. A. Doran, Camb. and Manch.; V. K. Drennan, Liverp.; W. F. Dunham, Guy's; M. P. Embrey, Cardiff; C. N. Faith, St. George's; B. Flacks, Manch.; H. R. W. Franklin, Guy's; J. E. Furness, St. Thos.; D. M. T. Gairdner, Oxon. and Middlesex; W. J. Gardner, Guy's; Dorothy Gibson, King's Coll.; C. A. Gibson-Hill, Camb. and King's Coll.; E. Gill-Carey, Guy's; E. Gillett, Guy's; W. A. Glynn, Manch.; C. Graham, Belf.; C. Grahame, Middlesex; G. Gray, Camb. and St. Bart.'s; J. L. Haber, St. Mary's; E. B. Hacking, Camb. and Lond.; M. A. Hai, Patna and Cardiff; H. P. A. Hale, Cape and St. Thos.; G. N. St. J. Hallett, Camb. and St. Thos.; A. J. Hardy, Westminster; Margaret C. Hartley and Denise O. Henry, Roy. Free; R. M. Hewat, St. Mary's F. Hirschman, St. George's; G. T. Holroyd, St. Thos.; M. C. Hood, Manch.; T. H. Hughes, St. Bart.'s; J. I. A. Jamieson, Manch.; Mary John, Punjab and West Lond.; T. E. Johnson, Camb. and Westminster; H. G. Jones, Middlesex; J. G. Jones, Cardiff and St. Mary's; R. T. Jones, Liverp.; W. A. Jones, St. Mary's; A. L. Kauffman, King's Coll.; Helen M. Kennedy, Roy. Free; A. R. R. Kent, Middlesex; Dorothea M. Kerslake, Roy. Free and West Lond.; W. C. Knight, Camb. and St. Bart.'s; J. Lawson, Liverp.; C. L. Lewis, St. Bart.'s; O. C. Lloyd, Camb. and Lond.; M. A. Loutfy, Cairo and St. Mary's; G. E. Loxton, Camb. and St. Bart.'s; L. G. Lyle, Guy's; J. A. V. McCrea, Cardiff and Lond.; H. C. Maclaren, Camb. and St. Bart.'s; G. S. Malvai, Punjab and West Lond.; N. H. Martin, Oxon. and Middlesex; Oonnunniamma Matthai, Madras and Edin.; R. T. May, Camb. and St. Thos.; M. D. Messent, Camb. and St. George's; A. J. Moon, Camb. and Lond.; Robina M. D. Morrell, Roy. Free; R. J. Murphy, Sheff.; A. T. M. Myres, Oxon. and St. Thos.; R. C. Neville, Camb. and Guy's; Muriel L. Newhouse, Roy. Free; W. S. Parker, Manch.; R. W. Parnell, Oxon. and Lond.; P. M. J. Phillips, King's Coll.; A. D. Picton, Oxon. and King's Coll.; J. E. Pike, Middlesex; Fanny Pollecoff, Camb. and Roy. Free; P. C. A. Posford, St. Thos.; S. W. Pratt, Univ. Coll.; M. Price, King's Coll.; R. F. Raynes, St. Mary's; Kathleen M. Robinson, Roy. Free; H. Roser [illegible] Rotter, St. Bart.'s; E. M. Rowland, U[illegible] Camb. and Lond.; D. A. Saunders, [illegible] and Univ. Coll.; A. S. Sen, King's [illegible] I. B. Sen Gupta, Bengal and West Lo[illegible] and King's Coll.; R. M. Shaw, Ma[illegible] Osmania and Leeds; H. Sirota, Camb. and Lond.; E. W. G. Skinner, St. Mary's; H. B. Slater, Manch.; A. J. Smith, Guy's; Eveline A. Smith, Univ. Coll.; H. W. Smith, Beirut and Birm.; J. L. Smith, Camb. and St. Bart.'s; Sheila G. Snook, Roy. Free; J. W. Spies, Harvard; Christine M. Stacey, Roy. Free; H. J. Stammers, King's Coll.; B. St. J. Steadman, Charing Cross; M. Sternberg, Middlesex; D. H. Swayne, Oxon. and St. George's; R. G. Talwalkar, Bombay and Lond.; J. Thomas, Cardiff; J. W. Thompson, Birm. and St. Bart.'s; Claire P. Thomson, Manch.; R. L. Tiruchelvam, Singapore; J. D. Tonkinson, Camb. and Westminster; J. R. de V. Toussaint, Ceylon and Middlesex; P. de B. Turtle, Oxon. and St. Thos.; J. Vahrman, St. Bart.'s; J. J. Voller, St. Thos.; G. O. Walker, Manch.; R. E. D. Wheeler, Liverp.; and A. S. Wigfield, Camb. and Univ. Coll.

Diplomas were conferred jointly with the Royal College of Surgeons as follows :

Diploma in Child Health.—R. K. Clough, M. Coke, R. E. C. Copithorne, R. A. Davar, L. F. Dods, R. V. Harris, W. Henderson, A. L. Jacobs, Grace E. McConkey, F. J. W. Miller, J. N. Morris, S. G. Nimatallah, B. R. R. L. Reddy, Marjorie A. Robson, K. Samson, T. M. J. Stewart, and Ma May Su.

Diploma in Public Health.—D. S. Clark, Margaret F. Coveney, Jane Druker, C. R. M. Greenfield, B. D. Khurana, H. E. Knott, P. J. McNally, R. L. Osmaston, Emily L. Simon, J. Singh, and D. W. Soman.

Diploma in Anæsthetics.—W. R. Cooper, Charles Corfield, H. S. Drabble, H. A. Richards, and Elaine B. S. Stocquart.

Society of Apothecaries of London

At recent examinations the following candidates were successful :—

Surgery.—H. A. Bhuttacharji, Univ. Coll. Hosp.; J. W. Cazalet, Bombay and West London Hosp.; F. T. Futers, King's Coll. Hosp.; H. W. John, St. Mary's and West London Hosp.; G. S. Parker, Univ. of Manch.; J. N. Roberts, Univ. of Camb. and Charing Cross Hosp.; and J. W. Thomas, Welsh National School of Medicine.

Medicine.—J. S. P. Coutts, Bombay and St. Mary's Hosp.; F. J. H. de Marigny, Guy's Hosp.; A. P. Mittra, Royal Colleges, Edinburgh; J. E. T. Munn, St. Mary's Hosp.; J. W. Spies, Univ. of Harvard; P. Tobin, Middlesex Hosp.; and R. L. Williams, London Hosp.

Forensic Medicine.—F. J. H. de Marigny, Guy's Hosp.; A. P. Mittra, Royal Colleges, Edinburgh; J. W. Spies, Univ. of Harvard; P. Tobin, Middlesex Hosp.; and R. L. Williams, London Hosp.

Midwifery.—W. D. Brinton, Guy's Hosp.; J. Frankenthal, Univ. of Liverp.; E. R. Jones, St. Mary's Hosp.; R. A. McMillan, Middlesex Hosp.; A. P. Mittra, Royal Colleges, Edinburgh; J. W. P. Morgan, St. Mary's Hosp.; K. G. Pascall, Guy's Hosp.; A. F. Rogers, St. Mary's Hosp.; J. W. Spies, Univ. of Harvard; R. A. Stenhouse, Guy's Hosp.; and R. H. S. Thompson, Univ. of Oxford and Guy's Hosp.

The following candidates, having completed the final examination, are granted the diploma of the society entitling them to practise medicine, surgery, and midwifery :—

J. S. P. Coutts, J. W. Spies, R. A. McMillan, J. W. Thomas, J. E. T. Munn, and P. Tobin.

Aberdeen University Club, London

The 96th half-yearly dinner will be held at the Café Royal, Regent-street, at 7 for 7.30 P.M. on Thursday, Nov. 19th. The chairman will be Principal W. H. Fyfe and the guests will include Mr. Ramsay MacDonald. The hon. secretary's address is 51, Harley-street, W.1.

THE viscounty conferred on Lord Dawson in the Birthday Honours list has been gazetted under "the name, style, and title of Viscount Dawson of Penn, of Penn, in the county of Buckinghamshire."

THE Association of Anæsthetists of Great Britain and Ireland at their annual general meeting on Oct. 30th elected Lord Nuffield an honorary member, in recognition of his proposal to found a chair of anæsthetics in the University of Oxford.

University of Edinburgh

Dr. Edwin Bramwell has given to the department of medicine a collection of 3750 reprints of medical and scientific papers, with index, and a collection of lantern slides and Sir Byrom Bramwell's lecture diagrams.

British College of Obstetricians and Gynæcologists

The following have been awarded the diploma of the college (D.C.O.G.) after examination :—

Moya Blackall, J. H. Boultbee, Jean F. Campbell, Henry Canwarden, Vera E. Claxton, M. R. Divekar, L. W. B. Dobbin, A. S. Hannay, J. D. Hardy, Margaret Jackson, Raymond Judson, R. St. John Kemm, J. H. Leadley, S. J. C. MacKay, G. I. Miller, J. F. O'Halloran, M. Y. Paget, Frances E. Powell, Harold Powell, H. C. S. Pimblett, W. A. Roxburgh, Jean Sutherland, P. C. Thomas, Anna Vareed, C. A. H. Watts, and A. H. Winchester.

Royal Medico-Psychological Association

On Wednesday, Nov. 25th, at 3 P.M., at 1, Wimpole-street, London, W.1, Sir Walter Langdon-Brown will deliver the seventeenth Maudsley lecture to this association. He will speak on the biology of social life, and all interested are invited.

Soviet Medical Encyclopædia

The large Soviet Medical Encyclopædia, edited by Dr. N. A. Semashko, formerly People's Commissar of Health for the R.S.F.S.R., has now been completed. It consists of 35 volumes containing 6396 articles and 80,000 scientific terms.

Heath Clark Lectures

The Heath Clark lectures on the history of bacteriology, to be given next week by Prof. William Bulloch, F.R.S., have been postponed. It is hoped that he will give them on Jan. 25th, 28th, Feb. 1st, 4th, and 8th, at 5.30 P.M., at the London School of Hygiene, Keppel-street, W.C.

British Institute of Philosophy

On Tuesday, Nov. 17th, at 8.15 P.M., at University College, Gower-street, W.C., Sir Herbert Samuel will deliver his presidential address to this institute. It is entitled War of Ideas. Cards of admission can be obtained from the director of studies at University Hall, 14, Gordon-square, London, W.C.

14 Stationary Hospital, B.E.F.

The seventeenth annual dinner of the medical officers of this hospital will be held at the Trocadero Restaurant, London, W., on Friday, Dec. 11th, at 7.45 P.M. The secretaries are Major-General H. M. Perry and Dr. H. L. Tidy, and they may be addressed at 39, Devonshire-place, W.1.

Royal Buckinghamshire Hospital

On Oct. 31st the Duchess of York visited this hospital at Aylesbury to open the special departments' building for out-patients and the nurses' home extension. The new out-patient department includes a minor operation theatre, consulting-rooms, and electro-therapeutic, physiotherapeutic, and orthopædic rooms. Space has been left beside it for the addition of a new X ray department in the future. A three-storey wing has been added to the nurses' home containing 28 new bedrooms.

Papworth Village Settlement

At the Sims Woodhead memorial laboratory at the Settlement, Dr. W. Pagel will give two demonstrations, on Saturday, Nov. 21st, and on Saturday, Nov. 28th, at 3 P.M. The subjects of the demonstrations will be : new experiments on the dissociation of allergy and immunity ; the experimental production of allergy and immunity by non-specific influences in tuberculosis ; the experimental production of isolated kidney tuberculosis ; and the pathology of experimental bronchial asthma. Those who wish to attend should communicate with Dr. Pagel, Papworth Hall, Cambridge.

LONDON MEDICAL SOCIETIES

AT the opening of a new session we are again giving for the convenience of our readers the names of presidents and hon. secretaries of London medical societies, with the addresses at which they can be approached.

Royal Society of Medicine.—President : Sir John Parsons, F.R.S. Hon. secretaries : Dr. Anthony Feiling and Mr. John Hunter. (1, Wimpole-street, W.1.)

Medical Society of London.—President : Sir William Willcox. Hon. secretaries : Dr. A. H. Douthwaite and Mr. A. Simpson-Smith. (11, Chandos-street, W.1.)

Hunterian Society.—President : Mr. H. L. Attwater. Hon. secretaries : Mr. A. E. Porritt and Dr. John Leebody. (27, Harley-street, W.1.)

Harveian Society.—President : Dr. Gilbert Orme. Hon. secretaries : Mr. John Hunter and Dr. F. S. Cooksey. (70, Harley-street, W.1.)

Royal Society of Tropical Medicine.—President : Sir Arthur Bagshawe. Hon. secretaries : Dr. C. M. Wenyon, F.R.S., and Dr. Hamilton Fairley. (Manson House, 26, Portland-place, W.1.)

Royal Medico-Psychological Association.—President : Dr. Abdy Collins. Hon. general secretary : Dr. W. G. Masefield. (11, Chandos-street, W.1.)

Society of Medical Officers of Health.—President : Dr. Ernest Ward. Executive secretary : Mr. G. L. C. Elliston. (1, Thornhaugh-street, W.C.1.)

Association of Industrial Medical Officers.—President : Dr. N. Howard Mummery. Hon. secretary : Dr. Donald Stewart. (I.C.I. Metals Ltd., Kynoch Works, Witton, Birmingham.)

Tuberculosis Association.—President : Dr. S. Roodhouse Gloyne. Hon. secretary : Dr. F. R. G. Heaf. (County Hall, S.E.1.)

British Institute of Radiology.—President : Prof. J. A. Crowther, Sc.D. Hon. secretaries : Dr. Boulton Myles and Mr. G. E. Bell, M.Sc. (32, Welbeck-street, W.1.)

Society of Radiotherapists of Great Britain and Ireland.—President : Dr. G. F. Stebbing. Hon. secretaries : Dr. B. W. Windeyer and Dr. Ralph Phillips. (11, Chandos-street, W.1.)

Medico-Legal Society.—President : Mr. C. Ainsworth Mitchell, D.Sc. Hon. secretaries : Mr. Artom A. Romain and Dr. W. G. Barnard. (120, Seymour-place, Bryanston-square, W.1.)

London Association of the Medical Women's Federation.—President : Miss E. C. Lewis. Hon. secretary : Mrs. Philippa Martin. (40, Wimpole-street, W.1.)

Medical Society of Individual Psychology.—Chairman : Dr. C. M. Bevan-Brown. Hon. secretary : Dr. Alexander Baldie. (7, Warrington-gardens, Warwick-avenue, W.9.)

Society for the Study of Inebriety.—President : Dr. William Brown. Hon. secretary : Dr. T. N. Kelynack. (144, Harley-street, W.1.)

The Cancer Society.—President : Dr. A. C. Magian. Hon. secretary : Dr. D. F. Kennard. (225, Euston-road, N.W.1.)

London Jewish Hospital Medical Society.—President : Mr. Arnold Sorsby. Hon. general secretary : Dr. Max Sorsby. (London Jewish Hospital, Stepney-green, E.1.)

St. John's Hospital Dermatological Society.—President : Dr. W. N. Goldsmith. Hon. secretary : Dr. I. Muende. (5, Lisle-street, W.C.2.)

Chelsea Clinical Society.—President : Mr. Andrew Rugg-Gunn. Hon. secretaries : Mr. H. Paxton Baylis and Dr. Robert Cutler. (8, Lower Sloane-street, S.W.1.)

Hackney Medical Society.—President : Dr. A. J. Ambrose. Hon. secretary : Dr. H. Stark. (26, Stoke Newington Common, N.16.)

Hampstead Medical Society.—President : Dr. James Andrews. Hon. secretaries : Dr. T. J. Hollins and Dr. N. A. Sprott. (2, Frognal, N.W.3.)

North London Medical and Chirurgical Society.—President : Dr. E. C. Girling. Hon. secretaries : Dr. W. E. Snell and Dr. J. M. Campbell Maxwell. (Royal Northern Hospital, N.7.)

North-West London Medical Society.—President : Sir

Harold Gillies. Hon. secretary: Mr. Lionel Green. (127, Harley-street, W.1.)

Priory Medical Society.—Hon. secretary: Dr. Robert Cruden. (3, Anson-road, Cricklewood, N.W.2.)

South-West London Medical Society.—President: Dr. A. Clarke. Hon. secretaries: Dr. E. G. Housden and Dr. A. W. Wells. (51, Longley-road, S.W.17.)

Paddington Medical Society.—President: Dr. Alexander Baldie. Hon. secretary: Dr. S. Crown. (81, Elgin-avenue, W.9.)

West London Medico-Chirurgical Society.—President: Mr. Neil Sinclair. Hon. secretaries: Dr. W. K. McKinstry and Mr. A. Simpson-Smith. (1, Gunterstone-road, W.14.)

West Kent Medico-Chirurgical Society.—President: Dr. H. V. Morlock. Hon. secretary: Dr. C. J. B. Buchan. (267, Baring-road, Grove Park, S.E.12.)

PARLIAMENTARY INTELLIGENCE

OPENING OF THE NEW SESSION

The King's Speech

THE new session was opened by H.M. the King in the House of Lords on Tuesday, Nov. 3rd.

The King in his Gracious Speech from the Throne said the present law regulating the conditions of work in factories was based on the Act of 1901, and though it had from time to time been modified in certain particulars further amendment and consolidation were long overdue. The Government intended to invite Parliament to undertake and carry through this important work in the course of the present session. His Majesty said he was impressed with the need for more comprehensive measures to improve the physical condition of the nation, especially among the younger members of the community, and the Government would in due course submit to Parliament proposals designed to carry out this purpose. Encouragement would continue to be given to the development of the existing public health services. Vigorous action for the provision of housing accommodation to replace slum dwellings and abate overcrowding would be maintained. Legislation would be introduced to provide medical care for young persons who had left school and entered employment, and to extend to persons with limited income voluntary insurance for the purpose of pensions. Measures would also be submitted to reduce the age limit for the award of pensions to blind persons, and to make further provision for the superannuation of local government officers. A Bill would be laid before Parliament to remove certain anomalies in the present standing of Ministers by adjustments and alterations in their salaries, and for other purposes. Close attention would be given to the improvement of conditions in Scotland. The Government were examining the Report of the Committee on Scottish Health Services, and among measures relating to health a Bill for the development of Scottish maternity services would be introduced. Other measures of importance would be laid before Parliament and proceeded with as time and opportunity offered.

Physical Condition of the Nation

In the House of Commons Miss HORSBRUGH, in moving an Address in reply to the Speech from the Throne, said she welcomed the assurance that proposals would be introduced for more comprehensive efforts to improve the physical condition of the nation. Much had already been done, but there were gaps in our health services which she was glad to think were to be filled up. The people of Scotland would await with interest the result of the examination of the Report on the Scottish health services, and would welcome the Bill for further developments of maternity services in Scotland.

Mr. ATTLEE, Leader of the Labour Opposition, remarked that there was widespread malnutrition and it was said that the country could not afford more for the unemployed than the bare limits of the means test. There were 4,500,000 persons in the country below the minimum standard scale of the British Medical Association. School-children were suffering from malnutrition and the recruiting returns showed that they could not get men of the proper physical standard. Those returns were the result of the neglect of mothers and children in the past.

Mr. BALDWIN, Prime Minister, said he hoped that the Factories Bill would be introduced before Christmas, and that they would be able to deal with all aspects of the subject. They considered the existing law to be out of date. The Bill would not only be a consolidating measure, but a measure of revision bringing existing laws up to date. It should give a greatly improved provision for safety, health, and welfare in the factories. The work of housing and slum clearance would be tackled vigorously. Referring to housing, the right hon. gentleman said there was much work to be done under the Overcrowding Act. Local authorities had found that about 340,000 houses out of a total of about 9,000,000 inspected were overcrowded, but this was well within the capacity of the local authorities. The Government attached importance to medical care for young persons. They would fill a gap there between the school medical service and the age of 16, a most important gap from birth to the adult period of life.

Sir S. CHAPMAN welcomed the measure foreshadowed in the King's Speech for seriously taking in hand the physical training of the nation. He urged the establishment of athletic clubs, with committees comprising representatives of the members of the clubs, university professors, men eminent in sport, and perhaps a medical man.

Better Housing and Nutrition

In the House of Lords Lord CORNWALLIS, in seconding the Address in reply to the Speech from the Throne, said that the foundation for an improvement in the health of the people must be laid before physical improvement could take place. Houses with provision of light and air were a necessity, coupled with good food. Slums and lack of nutrition would not grow healthy bodies, however intensive physical education might be. He made a special plea for children between the ages of 14 and 18. He hoped that the Government's plans would pay special attention to that age-group, and that they would coöperate fully with the voluntary organisations.

Lord SNELL said that the question of the physical health of the nation should have been tackled decades ago. No interest would have been aroused in the matter except for the position in regard to recruiting. What unfit people needed was better and regular food, rather than physical exercises. If the Government wished to tackle the question of the physique of Army recruits, they should tackle it at the right end.

Viscount HALIFAX, Lord Privy Seal, gave an assurance that the Government realised to the full the close connexion between the physical and mental health of the people. Medical men were constantly emphasising how closely allied were the mind and the body. It was impossible to have a contented population unless they brought the physical conditions of life closer to those which they would all like to see. It was the desire of the Government to make every use they could of the voluntary societies, which had done excellent work.

QUESTION TIME

THURSDAY, OCT. 29TH

Slum Clearance and Overcrowding

Sir GEORGE MITCHESON asked the Minister of Health if he could make a statement as to the progress in respect of slum clearance and the abatement of overcrowding.—Sir KINGSLEY WOOD replied: Some 25,000 slum dwellers are being rehoused month by month under the five-year slum clearance plan, and the total at the end of August was some 450,000. I have fixed "appointed days" for overcrowding in respect of 1320 of the total 1536 authorities. For 1284 the appointed day is Jan. 1st next, and for 36 it is April 1st next, and rehousing proposals to abate overcrowding are now under active consideration.

Mr. Macquisten: In any of these housing schemes are the people being housed in tall tenements or lower buildings?—Sir K. Wood: I think there is a variety.—Mr. Macquisten: Will the right hon. gentleman see that if they are put into these tenements they are provided with lifts, as it is hard work for the people to climb the stairs?

Mr. Thorne: Is the right hon. gentleman aware that the difficulty in many towns is due to the fact that the ordinary landlord will not let houses to people who have large families?—Sir K. Wood: Perhaps the hon. Member will communicate to me any cases he has in mind.

Health and Safety in Mercantile Marine

Mr. Ede asked the President of the Board of Trade what action had been taken to amend and modernise the regulations governing the manning of the mercantile marine and the conditions, including safety, in that service.—Dr. Burgin, Parliamentary Secretary to the Board of Trade, replied: New instructions regarding the deck manning of foreign-going ships have been in force since July last. Revised instructions as to annual loan line surveys are under consideration by the Merchant Shipping Advisory Committee, and new draft instructions as to crew accommodation will shortly be submitted to that committee. Discussions are proceeding with the classification societies and the industry in regard to the steps to be taken to implement the recommendations of the Steering Gear Committee. As an interim measure a letter drawing the attention of owners of cargo ships to the special measures which the Board of Trade consider ought to be taken in regard to steering gear, hatch covering arrangements, and annual loan line surveys has been sent to the shipowners' organisations and has been circulated by them to shipowners concerned.

Sir Francis Fremantle: What action has been taken in regard to the health provisions which have been suggested and urged upon the Board of Trade for at least 20 years and nothing done? Has anything been done with regard to the messing and health services required for the men?—Dr. Burgin: A great deal has been done, but obviously that is entirely a different question from the one on the Paper.

Medical Diary

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Tuesday, Nov. 10th.

Therapeutics and Pharmacology, and Urology. 5 P.M. Dr. M. L. Rosenheim, Dr. W. W. Payne (with Dr. A. G. Signy), Mr. E. W. Riches, and Mr. A. W. Cubitt: Urinary Antiseptics (including Sodium and Ammonium Mandelate). Mr. Clifford Morson will also speak.

Psychiatry. 8.30 P.M. Dr. T. A. Ross: Medicine and Science. (Presidential Address.)

Friday.

Clinical. 5.30 P.M. (Cases at 4.30 P.M.) Dr. E. A. Cockayne: 1. Myositis Ossificans Progressiva. Dr. M. B. Ray: 2. Nodular Rheumatism. Mr. D. C. L. Fitzwilliams: 3. A Series of Cases of Partial Amputation of the Breast for Early Carcinoma.

Ophthalmology. 8 30 P.M. (Cases at 8 P.M.) Mr. A. Ballantyne: A Case of Cranio-facial Dysostosis. Mr. J. Minton: A Clinical Study of 54 Cases of Occlusion of the Central Artery of the Retina and its Branches. Dr. Frances Richman (New York): Hæmorrhages in the Fundi of the New-born. Mr. T. M. Tyrell: Tubercle on the Free Border of the Iris.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, W.

Monday, Nov. 9th—8 30 P.M., Mr. Bowdler Henry: Ætiology and Treatment of Impacted Wisdom Tooth.

LONDON JEWISH HOSPITAL MEDICAL SOCIETY, Stepney Green, E.

Thursday, Nov. 12th.—3.30 P.M., Clinical Cases. 4.45 P.M., Dr. J. Leon Jona: Obscure Kidney Pain—Physiological Investigation and Indications for Treatment.

PHARMACEUTICAL SOCIETY, 17, Bloomsbury-square, W.C.

Tuesday, Nov. 10th.—8.30 P.M., Dr. Donald Hunter: Industrial Toxicology of To-day.

BIOCHEMICAL SOCIETY.

Friday, Nov. 13th.—5 P.M. (Physiology Institute, Newport-road, Cardiff), Short Communications and Demonstrations.

PADDINGTON MEDICAL SOCIETY.

Tuesday, Nov. 10th.—9 P.M. (Great Western Royal Hotel, W.), Dr. Pearse Williams: Some Common Difficulties of Infant Feeding during the First Year.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.

Friday, Nov. 13th.—8.45 P.M. (Miller General Hospital, Greenwich), Mr. Hope Carlton: The Part which can be played by Rectal Examination in the Diagnosis of Surgical Conditions.

SOUTH-WEST LONDON MEDICAL SOCIETY.

Wednesday, Nov. 11th.—9 P.M. (Bolingbroke Hospital, Wandsworth Common), Mr. Blundell Bankart: Fractures of the Neck of the Femur.

NORTH LONDON MEDICAL AND CHIRURGICAL SOCIETY, Royal Northern Hospital, Holloway-road, N.

Friday, Nov. 13th.—9.15 P.M., Clinical Evening.

MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY.

Thursday, Nov. 12th.—8.30 P.M. (11, Chandos-street, W.), Symposium on Mental Health in Childhood and Adolescence—No. 1. Dr. Joyce Partridge: The Management of Early Infancy.

HARVEIAN SOCIETY.

Friday, Nov. 13th.—8.30 P.M. (Hospital for Sick Children, Great Ormond-street, W.C.), Clinical Meeting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.

Tuesday, Nov. 10th.—5 P.M., Dr. J. D. Rolleston: The History of the Acute Exanthemata. (Second Fitz-Patrick Lecture.)

Thursday.—5 P.M., Dr. R. R. Trail: Recent Aids to the Prognosis of Pulmonary Tuberculosis. (Mitchell Lecture.)

ROYAL SANITARY INSTITUTE, 90, Buckingham Palace-road, S.W.

Tuesday, Nov. 10th.—5.30 P.M., Lt.-Col. Gerald Leighton: The Supervision of the Nation's Food-supply. (Benjamin Ward Richardson Lecture.)

INSTITUTE OF HYGIENE, 28, Portland-place, W.

Wednesday, Nov. 11th.—3.30 P.M., Dr. Alan Moncrieff: Children's Health in Winter.

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane-road, W.

Monday, Nov. 9th.—2.15 P.M., Dr. Duncan White: Radiological Demonstration.

Tuesday.—2 P.M., Prof. E. H. Kettle, F.R.S.: Pathological Demonstration. 4.30 P.M., Dr. H. Yellowlees: Psychological Medicine.

Wednesday.—Noon, clinical and pathological conference (medical). 2.30 P.M., clinical and pathological conference (surgical). 4.30 P.M., Prof. S. P. Bedson, F.R.S.: Virus Diseases.

Thursday.—2.15 P.M., operative obstetrics. 3.30 P.M., Mr. Eardley Holland: Hæmorrhage of Late Pregnancy.

Friday.—2.15 P.M., Department of Gynæcology: Pathological Demonstration. 2.30 P.M., Prof. John Fraser: Acute Surgical Infections of Bone.

Daily, 10 A.M. to 4 P.M., medical clinics, surgical clinics or operations, obstetrical and gynæcological clinics or operations.

INSTITUTE OF MEDICAL PSYCHOLOGY, Malet-place, W.C.

Monday, Nov. 9th.—3 P.M., Prof. Millais Culpin: Sex Aberrations. 4.30 P.M., Dr. H. V. Dicks: Delinquency and its Psychological Treatment. 5.45 P.M., Dr. J. A. Hadfield: General Discussion and Questions.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.

Monday, Nov. 9th.—10 A.M., skin clinic. 11 A.M., surgical wards. 2 P.M., operations, surgical and gynæcological wards, medical, surgical, and gynæcological clinics.

Tuesday.—10 A.M., medical wards. 11 A.M., surgical wards. 2 P.M., operations, medical, surgical, and throat clinics.

Wednesday.—10 A.M., children's ward and clinic. 11 A.M., medical wards. 2 P.M., gynæcological operations, medical, surgical, and eye clinics.

Thursday.—10 A.M., neurological and gynæcological clinics. Noon, fracture clinic. 2 P.M., operations, medical, surgical, genito-urinary, and eye clinics. 4.15 P.M., venereal diseases.

Friday.—10 A.M., medical wards, skin clinic. Noon, lecture on treatment. 2 P.M., operations, medical, surgical, and throat clinics. 4.15 P.M., Dr. Hugh Gordon: Treatment of Skin Diseases.

Saturday.—10 A.M., children's and surgical clinics. 11 A.M., medical wards.

The lecture at 4.15 P.M. is open to all medical practitioners without fee.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

Monday, Nov. 9th, to Sunday, Nov. 15th.—St. John's Hospital, Leicester-square, W.C., afternoon course in dermatology.—St. Peter's Hospital, Henrietta-street, W.C., all-day course in urology.—Royal Waterloo Hospital, Waterloo-road, S.E., all-day course in medicine, surgery, and gynæcology.—Princess Beatrice Hospital, Richmond-road, S.W., Sat. and Sun., course in general surgery.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

Wednesday, Nov. 11th.—2 P.M., Dr. Wilfrid Sheldon: The Premature Infant. 3 P.M., Dr. W. W. Payne: Metabolism of Endogenous and Exogenous Rickets.

Out-patient clinics daily at 10 A.M., and ward visits at 2 P.M.

LONDON SCHOOL OF DERMATOLOGY, 5, Lisle-street, W.C.

TUESDAY, Nov. 10th.—5 P.M., Dr. H. MacCormac: Malignant Growths of the Skin.

WEDNESDAY.—5 P.M., Dr. I. Muende: Histopathology of Chronic Granulomata.

THURSDAY.—5 P.M., Dr. Hugh Gordon: Cutaneous Affections due to Sunlight. (Chesterfield Lectures.)

NATIONAL HOSPITAL, Queen-square, W.C.

MONDAY, Nov. 9th.—3.30 P.M., Mr. Leslie Paton: Optic Atrophy.

TUESDAY.—3.30 P.M., Dr. Critchley: Aphasia and Apraxia.

WEDNESDAY.—3.30 P.M., Dr. Kinnier Wilson: Clinical Demonstration.

THURSDAY.—3.30 P.M., Dr. Purdon Martin: The Cranial Nerves.

FRIDAY.—3.30 P.M., Dr. Bernard Hart: Psychopathology (VI.).

ST. PAUL'S HOSPITAL, Endell-street, W.C.

WEDNESDAY, Nov. 11th.—4.30 P.M., Mr. W. K. Irwin: The Causes of Frequency of Micturition, with special reference to Diagnosis and Treatment.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.

WEDNESDAY, Nov. 11th.—4 P.M., Mr. W. H. Ogilvie: Surgical Diagnosis.

ST. MARY'S HOSPITAL, W.

THURSDAY, Nov. 12th.—5 P.M., Dr. G. O. Barber: Ethics and Other Problems. (General Practice VI.)

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, Nov. 13th.—4 P.M., Mr. N. Asherson: The Treatment of Chronic Otorrhœa.

ST. JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE, 42, Ranelagh-road, S.W.

FRIDAY, Nov. 13th.—4.30 P.M., Mr. A. G. Timbrell Fisher: The Pathology of the Rheumatic Diseases.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION.

WEDNESDAY, Nov. 11th.—4 P.M. (St. James's Hospital, Ouseley-road, S.W.), Dr. H. C. Cameron: Some Gastro-intestinal Disorders in Infancy and their Treatment.

MANCHESTER ROYAL INFIRMARY.

TUESDAY, Nov. 10th.—4.15 P.M., Mr. A. Graham Bryce: Pulmonary Neoplasms.

FRIDAY.—4.15 P.M., Dr. T. H. Oliver: Demonstration of Medical Cases.

ANCOATS HOSPITAL, Manchester.

THURSDAY, Nov. 12th.—4.15 P.M., Dr. Reid: Self-inflicted Illness.

MANCHESTER HOSPITAL FOR CONSUMPTION, Deansgate.

WEDNESDAY, Nov. 11th.—4.30 P.M., Dr. Vernon Smith: Laryngitis.

LEEDS GENERAL INFIRMARY.

TUESDAY, Nov. 10th.—3.30 P.M., Mr. Pyrah: Demonstration of Surgical Cases.

LEEDS PUBLIC DISPENSARY.

WEDNESDAY, Nov. 11th.—4 P.M., Dr. H. H. Moll: Pleurisy, with special reference to Treatment.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.

WEDNESDAY, Nov. 11th.—4.15 P.M. (Royal Infirmary), Dr. A. Muir Crawford: The Clinical Manifestations of Œdema—their Diagnosis and Treatment.

Appointments

HART, F. D., M.B. Edin., has been appointed Medical Registrar at the Royal Northern Hospital, London.

LAW, F. W., M.D. Camb., F.R.C.S. Eng., Assistant Surgeon to the Royal London Ophthalmic Hospital.

London Homœopathic Hospital.—The following appointments are announced:—

BURNHAM, CECIL, M.B., F.R.C.S. Edin., Hon. Consulting Surgeon;

POWER, STEPHEN, M.S. Lond., F.R.C.S. Eng., Hon. Assistant Surgeon; and

PEARSON, THOMAS, M.R.C.S. Eng., D.O.M.S., Hon. Consulting Surgeon for Diseases of the Eye.

Vacancies

For further information refer to the advertisement columns

Altrincham General Hospital.—Jun. H.S., at rate of £120.

Army Dental Corps.—12 Commissions.

Bath, Royal United Hospital.—Res. O., £150.

Birmingham City.—Res. Asst. M.O., £400.

Birmingham, Selly Oak Hospital.—Jun. M.O.'s, each at rate of £200.

Bolingbroke Hospital, Wandsworth Common, S.W.—Hon. Physician Dermatologist.

Bristol Royal Infirmary.—Sen. Asst. Also Asst. to Cancer Research Dept., £400 and £300 respectively.

British Postgraduate Medical School, Ducane-road, W.—First Asst. in Obstet. Dept., £300–£500.

Coventry [illegible] *Hospital.*—Res. H.S. and Res. H.S. [illegible] ept., each at rate of £125.

Eastbourn [illegible] *Pevensey-road.*—H.S., £100.

Eastcote, [illegible] *s Orthopædic Hospital.*—Registrar, £150.

Essex County Council.—Ophthalmic S., £750.

Evelina Hospital for Sick Children, Southwark Bridge-road, S.E.—H.S., at rate of £120.

Gloucestershire County Council.—M.O., £800.

Gloucestershire Royal Infirmary, &c.—H.P., at rate of £150.

Gordon Hospital for Rectal Diseases, Vauxhall Bridge-road, S.W.—Res. H.S., at rate of £150.

Hastings, Royal East Sussex Hospital.—Sen. H.S., at rate of £200.

Haywards Heath Hospital.—Hon. Asst. Surgeon.

Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—Asst. Res. M.O., at rate of £150.

Hospital for Epilepsy and Paralysis, Maida Vale, W.—Hon. Ophth. Surgeon. Also two Med. Regs., each £100.

Hospital for Sick Children, Great Ormond-street, W.C.—Surgical Reg., £200. Res. H.P. and Res. H.S., each at rate of £100. Also Res. Anæsthetist Reg., at rate of £150.

Hove General Hospital.—Hon. Surgeon.

Huddersfield Royal Infirmary.—H.S. to Eye, Ear, and Obstet. Dept., at rate of £150.

Indian Medical Service.—Commissions.

Infants Hospital, Vincent-square, Westminster.—Hon. Clin. Assts. to Out-patients' Dept. Also H.P., at rate of £100.

Ipswich Mental Hospital.—Jun. Asst. M.O., £350.

Kent Education Committee.—M [illegible].

Lancaster Royal Infirmary.—Ju [illegible] 0.

Lincolnshire (Kesteven) County [illegible] M.O.H., £500.

Liverpool Royal Children's Hospital, Myrtle-street.—Med. Reg. and Tutor, at rate of £75.

London Hospital, E.—Med. and Surg. First Asst. and Reg., each £300.

London Jewish Hospital, Stepney Green, E.—Out-patient Asst., £125. Res. M.O. and H.P., at rate of £150. Also H.S. and Cas. O., at rate of £100.

Manchester Royal Eye Hospital.—Jun. H.S., £120.

Margate Royal Sea-Bathing Hospital.—H.S., at rate of £200.

Middlesex Hospital, W.—First Officer, £650. Second Officer, £625. Two Jun. M.O.'s, each £300, for Radiotherapy Dept. Also Physician.

Middlesex Hospital and Medical School, W.—Two Surgical Registrarships and one Obstet. and Gynæc. Registrarship, each £300.

Miller General Hospital, Greenwich-road, S.E.—Cas. O., at rate of £150. Also two H.P.'s and H.S., each at rate of £100.

Newport, Isle of Wight County Mental Hospital.—Temp. M.O., at rate of £200.

Northwood, Middlesex, Mount Vernon Hospital.—H.S., £150.

Paddington Green Children's Hospital, W.—Hon. Surgeon to Ear, Nose, and Throat Dept. Also Hon. Phys. to Out-patients.

Plymouth, Prince of Wales's Hospital, Greenbank-road.—Res. Surg. O. and H.S., at rate of £225 and £120 respectively.

Prince of Wales's General Hospital, N.—Hon. Clin. Assts. to Spec. Depts.

Princess Louise Kensington Hospital for Children, St. Quintin-avenue, W.—Hon. Asst. Physician.

Queen Charlotte's Maternity Hospital, Marylebone-road, N.W.—Res. Anæsthetist, at rate of £100. Res. Anæsthetist and District Res. M.O., at rate of £90. Also Asst. Res. M.O., at rate of £80.

Queen Mary's Hospital for the East End, E.—Hon. Asst. Physician for Children's Dept.

Redhill, Surrey, Royal Earlswood Institution.—Jun. Asst. M.O., at rate of £250.

Richmond, Su [illegible] n. H.S., at rate of £100.

Royal Cancer [illegible] .—H.S., at rate of £100.

Royal Naval [illegible]

St. Bartholom [illegible] f Asst. in X Ray Diagnostic Dept., £500.

St. John's Hospital, Lewisham, S.E.—Res. Surg. O., £200.

St. Mary's Hosp [illegible] *E.*—Res. H.S., at [illegible]

St. Peter's Hospit [illegible]

Salisbury General [illegible]

Salvation Army [illegible] Sen. Res. M. [illegible]

Sheffield, Jessop Hospital for Women.—Two H.S.'s, each at rate of £100.

Sheffield, Jessop Hospital for Women, Firth Auxiliary, Norton.—Res. M.O., at rate of £150.

Sheffield University, Dept. of Bacteriology.—Jun. Asst. Bacteriologist and Demonstrator, £300.

South Mimms, Clare Hall County Sanatorium.—Res. Asst. M.O., £400.

Stoke-on-Trent, North Staffordshire Royal Infirmary.—H.S., at rate of £150.

Surrey County Council.—Deputy County M.O.H., £1250.

Sutton, Sutton and Cheam Hospital.—Hon. Surgeon.

Tunbridge Wells, Kent and Sussex Hospital.—H.P., Sen. H.S., H.S. to Spec. Depts., and H.S. and Cas. O., each at rate of £150.

Western Ophthalmic Hospital, Marylebone-road, N.W.—Sen. Res. H.S. and Jun. H.S., at rate of £150 and £100 respectively.

Willesden General Hospital, Harlesden-road, N.W.—Hon. Clin. Assts. to Medical Dept.

Wolverhampton and Midland Counties Eye Infirmary.—H.S., £150.

The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Lavenham (Suffolk) and Hungerford (Berks

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UNWANTED INDICES to "THE LANCET."—Any reader who has an unbound copy not in use of the index for any of the years 1932, 1933, 1934 (Vols. I. and II.), and 1935 (Vol. I.) would greatly oblige by posting the same to the Editor of THE LANCET, 7, Adam-street, Adelphi, London, W.C.2.

NOTES, COMMENTS, AND ABSTRACTS

SAINTS AND MARTYRS *

BY DONALD HUNTER, M.D., F.R.C.P.
PHYSICIAN TO THE LONDON HOSPITAL

"All history," says Mr. Henry Ford, "is bunk." In one who has contributed so materially to the making of the history of our times, such an attitude indicates a becoming modesty. In us as members of the medical profession it would be boorish and ungrateful. Sir StClair Thomson (1933) once remarked that we have more need to-day than in any previous age to agree with Andrew Lang that "the little present must not be allowed wholly to elbow the great past out of view." And a man must indeed be unreceptive who can read of the sources of our art without absorbing something of the culture and high ethical standards which have ever distinguished its greatest exponents. It has been said that the history of medicine is more than history, it is medicine itself. The fundamental principles of any science can only be studied through the historical approach, and the study of the history of medicine remains a most perfect method of approaching the medical problems of to-day. My subject on this occasion is no more than a collection of anecdotes from the lives of scientists and medical men, who are distinguished by having met dangers and often death for the sake of their work. Some, like Lavoisier, died because they upheld the claims of science against politicians. Others, like Newton, made great discoveries in the face of poverty and worse obstacles. Many, like Roger Bacon, Bernard Pallissey, Copernicus, Servetus, Giordano Bruno, and Galileo, suffered persecution for their heretical views. Many again have taken risks and paid the penalty with their valuable lives.

For the love of knowledge and the joy of discovery the man of science faces the difficulties of his every-day work and gives no thought to the dangers. During an epidemic of cholera in Paris in 1865, Pasteur for a time undertook the study of the disease above the cholera ward of a hospital. Henri Saint Claire Deville once said to him. "Studies of that sort require much courage." "What about duty?" said Pasteur simply (Gregory, 1917).

Toxic Gases

Our knowledge of the physiological effects of toxic gases owes much to the self-sacrifice of the scientific worker. Their study naturally led to the deaths of pioneer workers.

Arseniuretted hydrogen was discovered in 1775 by Scheele. Its toxicity remained unknown until 1815 when Gehlen, a Munich chemist, in the course of some researches, "inspired a small portion, and at the termination of one hour was seized with continued vomiting, shivering, and weakness, which increased until the ninth day, when he died." In 1920 Dr. K. C. Schierbeck, of Copenhagen, died from arseniuretted hydrogen poisoning during studies made in collaboration with Dr. C. Lundsgaard on the mixture of air in the lungs with hydrogen. Usually the hydrogen was prepared from hydrochloric acid and zinc which were both arsenic free. As a further precaution the gas was washed by passing it through potassium permanganate, and a sample was tested for arsenic by Marsh's method (Lundsgaard and Schierbeck, 1923). Towards the end of the experiments the workers ran short of arsenic-free hydrochloric acid and Dr. Schierbeck himself was imprudent enough not only to make use of ordinary laboratory hydrochloric acid in the preparation of the hydrogen but also to neglect to wash the gas and to test a sample for arsenic. The evening on which the experiments were made he had fever, diarrhœa, and copper-coloured jaundice. The urine was red-brown and contained albumin and hæmoglobin. The jaundice persisted, and within a few days vomiting occurred, the liver became palpable, and the hæmoglobin fell from 46 per cent. to 31 per cent. His general condition became rapidly worse, dyspnœa was noticed, suppression of urine supervened and he died on the ninth day after the accident.

Nitrous oxide.—In 1906, while house surgeon to the Manchester Royal Infirmary, Dr. S. R. Wilson discovered mule-spinner's cancer. He noticed that the patients admitted with cancer of the scrotum were not chimney-sweeps but mule-spinners. So struck was he by the fact that in 1910 he wrote an essay on the subject. This was submitted for a scholarship, but was only published twelve years later. In 1927 at the age of 46 he died from an overdose of nitrous oxide while conducting researches into the border state between anæsthesia and consciousness.

Hydrogen cyanide.—During the late war Barcroft entered unprotected a chamber of hydrogen cyanide gas and remained there until the two dogs accompanying him had died, in order to prove that dogs were more susceptible to this substance than man.

Hydrofluoric acid.—In the middle of the nineteenth century many chemists attempted the isolation of fluorine from hydrofluoric acid, and more than one paid with his life for handling too frequently one of the most dangerous of known chemical substances. The danger arises from the volatility and extremely corrosive nature of the vapour of the anhydrous acid. Even when highly diluted with air it causes an intolerable prickling and burning sensation in the nose, mouth, and eyes. If inhaled it attacks the larynx and trachea, giving rise to burning pain behind the sternum, cough, expectoration, and even hæmoptysis. Unless handled with extreme care it may get under the finger-nails causing great pain, and if a drop comes in contact with the skin it has a caustic effect producing prolonged and painful ulceration.

It is said that G. Knox during his early experiments on the electrolysis of the acid lost permanently the use of his voice, and that T. Knox nearly died of its effect (Louyet, 1846). Humphry Davy wrote that he had suffered much from the dangerous effects of hydrofluoric acid, and it is said that he abandoned his attempts to isolate fluorine because of the risk involved. P. Louyet, who continued the researches of the Knox brothers, described how his own health deteriorated from using the acid, and how it caused him to suffer from cough and hæmoptysis. According to Debray (1886) the death of Louyet was a result of his work but no medical details are available. In 1869 J. Nicklès died from the effects of accidentally inhaling the vapour of concentrated hydrofluoric acid (Gore, 1869).

In spite of these deaths the search for the fourth halogen went forward. In 1886 H. Moissan isolated the element fluorine during the electrolysis of a solution of potassium fluoride in anhydrous hydrofluoric acid, and in an apparatus made wholly of platinum. In this way was solved one of the most difficult problems in modern chemistry.

Infections

Doctors and nurses are, of course, liable to direct infection from patients suffering from typhoid, diphtheria, and streptococcal sore-throat, as also to septicæmia from puncture wounds and to primary chancre of the finger. Under certain circumstances they may become infected by anthrax, typhus, or plague.

In the year 1900 the President of the United States appointed a commission of five, with Walter Reed at its head, to carry out investigations in Cuba with the object of discovering the cause of yellow fever. Believing that the mosquito theory could only be tested by actual experiment on the human subject, one of the members of the commission, Lazear, permitted himself to be bitten by a mosquito which had previously bitten a person suffering from yellow fever, with the result that he contracted the disease and died within a few days. The plain record of his sacrifice is inscribed upon a tablet erected to his memory: "With more than the courage and devotion of the soldier he risked and lost his life to show how a fearful pestilence is communicated and how its ravages may be prevented."

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* Abridged from an address delivered to former students of the London Hospital on Oct. 14th.

Similarly in Para in 1901 Walter Myers lost his life from yellow fever following an experimental mosquito bite. It is said that the French engineer who attempted to cut the canal through the isthmus of Panama lost a human life from yellow fever for every cubic yard excavated. When the canal zone came under control of the United States, an army of sanitary officers attacked the mosquito and abolished it. Thus, not only was a great engineering enterprise made possible but yellow fever was practically stamped out.

Investigations into the cause of sleeping-sickness led to the death of an army officer called Tulloch in 1907. This happened in Uganda from the bite of the tsetse fly which has destroyed millions of human beings in Central Africa.

Laboratory infections have been recorded in men working with *Bacillus mallei*, *B. pestis*, meningococcus, *Brucella melitensis*, *Br. abortus*, *Bacterium tularense*, and the viruses of psittacosis, yellow fever, Rift Valley fever, and louping-ill. In 1909 T. C. Parkinson, working with pneumonic plague at the Elstree branch of the Lister Institute, inhaled the organism and died. Thirty years ago in a laboratory at Czernowitz, a man was centrifuging a glanders suspension when the centrifuge broke, scattering the culture. Four people were infected and three died; it seems that the man responsible for the centrifuging was the one who recovered. In 1918 F. N. Thorborg died of meningococcal meningitis while employed in the manufacture of antimeningococcal serum in the State Serum Institute of Copenhagen. In the recent world outbreak of psittacosis many bacteriologists and laboratory attendants were infected while handling the virus or infected birds.

Louping-ill is a malady of sheep endemic in some areas of Scotland. Since the virus was first isolated in 1928 no fewer than four laboratory workers have developed symptoms varying from a mild attack of what was called influenza to a definite encephalitis with headache, vomiting, delirium, tremor, and lethargy (Rivers, 1934). In the experimental study of Rift Valley fever there has been a high incidence of the disease among laboratory workers, 16 cases having already been reported (Francis, 1935).

The death of W. Brebner in 1932 led directly to the discovery of a new neurotropic virus. He was 29 years of age and was engaged in experimental work on poliomyelitis in New York. He was bitten slightly on the hand by an apparently healthy monkey and a vesicular lesion accompanied by some lymphangitis appeared at the site of trauma. Thirteen days later he developed an ascending myelitis to which he succumbed on the eighteenth day. His heroic death is recorded in the cold language of a scientific communication in which he is referred to as "the human case"; thus, "in subsequent discussions the virus isolated from spleen, brain, and cord of the human case will be called the B virus" (Sabin and Wright, 1934). The Brebner virus has since been responsible for another case of ascending myelitis in a laboratory attendant accustomed to handling monkeys.

Since the introduction of the rhesus monkey in the study of yellow fever by the American Commission in West Africa, various laboratory workers have acquired the disease, not through the agency of infected mosquitoes, but by direct contamination with infective blood or tissues. Until 1928 investigations on yellow fever were invariably conducted in countries where it was endemic, and for this reason when members of the medical, laboratory, and nursing staff developed the disease, infection was attributed as a matter of course to the bite of the natural vector, *Aëdes argenteus* (*Stegomyia fasciata*). The tragic deaths of Guillet, Adrian Stokes, William Young, and Noguchi on the West Coast of Africa dramatically directed attention to the dangers of direct infection.

As a result of the death of Adrian Stokes, who had not been working with infected mosquitoes for several months, the passage of the virus through the skin of monkeys was investigated. It was shown that yellow fever resulted if infected blood was merely rubbed on the normal intact skin of the abdomen of *Macacus rhesus*. These experimental results did not determine whether the virus was capable of penetrating the normal unimpaired human skin of the hands, which is thicker and denser in texture than that of the monkey. In the case of Adrian Stokes several abrasions were recorded as being present, but three cases have since been published which illustrate the important fact that in man the virus of yellow fever is capable of penetrating the intact skin of the hands.

These three patients were laboratory workers in London who became directly infected with a Brazilian strain of yellow fever (Low and Fairley, 1931). The first was a youth aged 17 who became infected by handling *Macacus rhesus* in a laboratory where experimental investigations on yellow fever were in progress. The second, a man of 28, estimated the bilirubin and urea on specimens of blood which had been collected from the first patient and sent from the ward to the laboratory. Both these men recovered. The third, a laboratory technician, aged 21, had performed a blood count on the second patient and for this purpose had collected the blood himself. After an incubation period of ten days he became severely ill with yellow fever, and in spite of the use of convalescent serum he died on the fifth day of the illness. These events emphasise the danger of routine blood examinations in cases of yellow fever during the first four days of the illness and probably also in the incubation period. In all cases where yellow fever is suspected gloves should always be worn when blood is taken.

In addition to those mentioned above, the following lost their lives in investigating the diseases with which their names are associated: D. A. Carrion (verrugas), T. Carbone and A. MacFadyen (Malta fever), J. E. Dutton (African relapsing fever), H. T. Ricketts, von Prowazek, and A. W. Bacot (typhus), T. B. McClintick (Rocky Mountain fever), and W. R. Pirie (kala-azar).

Injuries from X Rays

Within three months of the announcement by Röntgen of the discovery of X rays it became known that T. A. Edison and W. J. Morton had suffered from conjunctivitis after some hours of exposure to irradiation. Within a year erythema, swelling, and necrosis of the skin, alopecia, and chronic radiodermatitis were reported.

The first death to be recognised as due to the action of X rays occurred as recently as 1914 in a radiologist, Tiraboschi of Bergamo. He had worked for 14 years with X rays and had taken no precautions. For several years he had had a radiodermatitis of his face. In the last three years of his life he lost his strength and became pale. Finally he bled from the gums and autopsy revealed aplastic anæmia together with atrophy of the testes (Faber, 1923). In 1922 Ledoux-Lebard estimated that a hundred radiologists had died from malignant disease due to their occupation. Deaths, among radiologists exposed to X rays before the importance of adequate protection was realised, unfortunately still occur. So far the victims have been research workers, radiologists, laboratory assistants, technicians, and nurses.

In March, 1899, Dr. J. Weldon, of Willimantic, Connecticut, exposed himself for an X ray picture of the hip-joint for 45 minutes with the Crookes tube, but 5 in. from the skin of the groin. A most intractable burn resulted, necessitating a severe operation and producing a disability for a year and a half (Cassidy, 1900). The clinical aspects of chronic X ray dermatitis in radiologists were described in 1904 by F. Hall-Edwards, himself an unfortunate victim of the disease.

Multiple squamous-celled carcinoma of the skin is well known as an ultimate effect of X irradiation but occasionally multiple basal-celled carcinoma occurs. O'Donovan (1927) has recorded such a case in which the trunk of a radiographer was affected. This man learned the arts of radiography and photography in Dr. Sequeira's department at the London Hospital. In his early professional days, from 1902 onwards, he made a constant practice of demonstrating his heart to students and visitors. It is interesting to record that his photographic work has achieved much recognition and has provided clinical illustrations for the published works of London Hospital men over many years.

Constitutional symptoms became prominent only after the introduction of deep X ray therapy, in which massive doses of deep penetrating rays were given. In 1923 A. E. Barclay gave the following description of his own symptoms. After 12 years' work and much screen examination with inadequate protection during the war, he began to have painless attacks of profuse diarrhœa, at first without other symptoms but later attended by initial malaise, nausea, vomiting, and on a few occasions by the passage of intestinal casts. Eventually it became necessary for him to give up work and the symptoms then ceased after three weeks. Return to work was followed by an attack 20 days later, and on eight occasions such an interval of 18–20 days was definitely established. He then adopted the most efficient means of protection known, a lead apron to cover the abdomen, and remained free from further attacks.

As long ago as 1905 unsuspected sterility was found in 18 persons who had for various periods been exposed to X rays (Brown and Osgood). As acute degenerative changes are known to follow vigorous irradiation in almost all the organs of the body, the development of chronic fibrosis is to be anticipated as a further result. In two of the famous radiologists who died from X ray injuries, Tiraboschi and Nordentoft, autopsy revealed fibrous atrophy of the testes (Faber, 1923).

Changes in the blood in X ray workers were early noted and have been extensively studied. The lymphocytes are first increased in number by small doses of X rays, then diminished. The red cells also may be increased at first, but anæmia sets in later and may attain a very extreme degree. In cases that recover the anæmia is slower to disappear than is the leucopenia. Tiraboschi died of a profound anæmia evidently aplastic in character (Faber, 1923).

In addition to those whose names have already been mentioned the following have lost their lives as a result of their work with X rays: R. Blackall, E. E. Wilson, J. Young, W. Hillier, I. Bruce, H. Fowler, M. K. Kassabian, E. W. Caldwell, W. J. Dodd, C. L. Leonard, C. M. Dally, Spence, Lyster, Perrie, Riddell, Walsham, A. Leray, Infroit, Radiguet, and Albers-Schönberg.

Injuries from Radio-Active Substances

Though medical practice is now almost safe so far as X irradiation is concerned, matters are very different in the case of radium. There is no doubt that many people here and in other countries too are affected by handling radium, mostly by the gamma rays. Their penetrating power is so great that it is not practicable to protect completely those who handle radium. In the case of people who carry radium about, the weight of lead they can bear to carry only partly protects them. The surgeon handling radium also is ill-protected. In the case of a man using 120 mg. of radium for treatment of carcinoma of the cervix uteri, repeated three times, protection is very difficult, for each time he has to handle the radium closely and carefully (Russ, 1935).

A few pathetic deaths have occurred in New Jersey from the use of radio-active substances in the luminous paint applied to the figures of clocks and watches.

Dr. S. A. von Sochocky, research chemist and technical director of the company in which the New Jersey cases occurred, died of aplastic anæmia in 1928 (Martland, 1929). The luminous paint used by the girls in the factory was made according to a formula which he had worked out. From 1913 to 1921 he personally extracted about 30 grammes of radium from the ore and was exposed continually to heavy penetrative radiation. He was exposed also to the inhalation of radio-active dust in the crystallising laboratory and on four occasions to explosions of tubes containing high concentrations of radium and mesothorium. He had an extensive radium dermatitis of the fingers of both hands and later developed necrosis of the jaw with buccal lesions. In 1925 he devised methods of measuring the amounts of radio-activity in the bones at autopsy. At this time he tested his own expired air and found larger amounts of emanation than in any of the factory girls examined. He thus realised the hopelessness of his own condition, but was stoical to the end. He was in a fair state of health and able to do his work until August, 1928, when he became weak, pale, and dyspnœic. Blood examination showed red cells 1,720,000 per c.mm., hæmoglobin 28 per cent., white cells 4000 per c.mm., with polymorphs 48 per cent. Later the white cell count dropped below 2000 with scarcely any granular cells. The blood-platelets dropped to less than 40,000 per c.mm. Ultimately he was kept alive by 13 blood transfusions varying from 450 to 900 c.cm., and given every fourth day. Except for a fine purpuric eruption over the extremities which appeared in crops, there was no bleeding until the last. He died a horrible death, with hæmoptysis, hæmaturia, retinal hæmorrhages, and terminal broncho-pneumonia. Autopsy showed radio-active deposits in the lungs, the portal of entry having evidently been the respiratory tract.

Conclusion

The world to-day is too busy applauding successful military commanders, popular orators and authors to recognise that all its material advance has been achieved by men of science. In the arts of sculpture and architecture, in literature, and in philosophy, the position gained by Greece two thousand years ago remains the standard of excellence for the modern; but the last fifty years have seen more additions to natural knowledge than all the ages before them, and the result has been advance not only in material welfare and comfort, but also in intellectual development. The present era will be remembered in future history not for its art, its literature, or its drama, but for its science. Pasteur, in the course of an address of thanks to the French Academy of Sciences in the theatre of the Sorbonne on his seventieth birthday (Dec. 27th, 1892), described himself as "a man whose invincible belief is that Science and Peace will triumph over Ignorance and War, that nations will unite, not to destroy, but to build, and that the future will belong to those who will have done most for suffering humanity."

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(*Continued at foot of next page*)

NEW PREPARATIONS

"COLLOSOL" BRAND COMPOUND HALIBUT OIL OINTMENT is recommended as "soothing, antiseptic, anti-pruritic." It is made by the Crookes Laboratories (British Colloids Ltd.), Park Royal, London, N.W.10, and their object is to provide vitamin A in a form in which its supposed regenerative or healing effect on skin cells can be conveniently utilised. The ointment, besides 500 international units of vitamin A per gramme, contains Collosol kaolin (to absorb toxins), resorcin, and oil of white birch. The many conditions considered likely to benefit from it include bedsores, dermatitis, impetigo, intertrigo, seborrhœa, urticaria, wounds and burns (especially in the granulation stage), and excoriation due to irritating discharges.

PERANDREN (Testosterone Propionate).—The manufacturers, Messrs. Ciba Ltd. (40, Southwark-street, S.E.1) describe this preparation as the first synthetic chemically pure testicular hormone, and they state that 1 mg. corresponds in activity to about 50 international units as defined by last year's International Conference for the Standardisation of Sex Hormones. In THE LANCET of Sept. 19th A. S. Parkes gave reasons for thinking that testosterone given as acetate or propionate "becomes slowly but continuously available to the animal so that the loss by excretion and destruction is very much less than when free hormone alone is administered." His results, he said, "indicate that the propionate of testosterone is much the most active male hormone compound so far known. It is, in fact, a most remarkable substance, which should be invaluable for clinical purposes where daily administration is inconvenient or even impossible." Messrs. Ciba point out that little has yet been written about the clinical application of their product, and that much remains to be done to define its "extraordinarily complex and numerous indications." These are the same as for the natural hormone, and it is suggested that Perandren may be tried, for example, in cases of testicular insufficiency (with physical or psychical loss of function), disturbance in sexual development, and affections of the prostate (especially hypertrophy) in the early stages. It is put up in ampoules of 1·1 c.cm. (1·0 c.cm. =5 mg. in sterile oily solution).

PLANACRINE ANTISEPTIC LOZENGES contain a mixture of 2: 8-diamino-10-methyl-acridinium chloride and diamino-acridine, and are flavoured with liquorice. They are said to be strongly bactericidal, yet free from irritating effects on mucous membranes. They are intended for disinfection of the mouth and throat, and for treatment of ulcerative or inflammatory conditions. "In simple sore-throat, tonsillitis, nasopharyngitis, gingivitis, and stomatitis, these lozenges combat the infection and relieve pain without an analgesic." The makers are Pharmaceutical Specialities (May and Baker) Ltd., Dagenham, Essex.

The BOOTS PURE DRUG COMPANY, LTD. (Nottingham), have issued a revised edition of their booklet on the use of Insulin-Boots in the treatment of diabetes. It gives a brief account of the history and properties of insulin, the preparation and standardisation of their own product, and the management of diabetes. It includes a summary of R. D. Lawrence's line-ration diet scheme, notes on the technique of injection and on necessary tests, and a bibliography. Copies may be had from the wholesale and export department.

(Continued from previous page)

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THE ROMANCE OF LONDON

IN the last sentence of his most recent book Mr. Thompson remarks that romance still exists i the London of to-day as it did centuries ago, an he has done much himself to make the romance o London accessible to those who have not the tim to frequent libraries and old bookshops. One reaso why marriage was so much more a lottery in earl eighteenth century England than it is now was th lack of some social medium for the introduction o one sex to the other. The chapters on "Gentlemen seeking wives" and "Ladies seeking husbands" are bot enlightening and amusing. There is naturally in mos of Mr. Thompson's books some evidence of his clos association with medicine as hon. curator of a sectio of the greatest of all medical museums. Chapter XVII on the Pox-doctors illustrates the prevalence o venereal diseases among all classes at the end of th seventeenth century, and there is an advertisemen of "a glorious spagyrick medicine" to be had o "your old friend Dr. Case who faithfully cures th Grand P——," who had the same way with him a the much more modern quack. Now that this kin of *advertisement has been banished from the publi* press one can look at the old (and more artisti version of it with less of a qualm. Readers will b grateful to Mr. Thompson for so telling a picture o social life in bygone London. The only troubl about the book is that the delightful map of ol London on the end papers, around which the tex centres, is so creased as to make it difficult to follow

IODINE AND GOITRE.—In the first leading articl of our last issue the seventh sentence should read Both von Fellenberg and Lunde showed that th urinary excretion of iodine was much diminished i adults living in a district with a *high* incidence o goitre.

IN the notice of the London Medical Exhibition i THE LANCET of Oct. 24th (p. 1011) the names of tw products shown by Bengue and Co., Ltd.—Permyas and Panbiol—were misspelt.

Births, Marriages, and Deaths

BIRTHS

GRAY.—On Oct. 21st, at Hayling Island, the wife of Dr. J. D Gray, of a son.
MITCHELL.—On Oct. 31st, at Bentinck-street, W., the wil of Dr. S. D. Mitchell, of Burntwood-lane, S.W., of a son.

MARRIAGES

HARVEY—IRVING.—On Oct. 23rd, at Cadeleigh, Devon, Dr Hubert Gosling Harvey to Gwendolen Margaret, daughte of the late Dr. and Mrs. R. J. Irving, of Cheltenham.
SHIPMAN—SMITH.—On Oct. 10th, at Simla, India, Capt. Rober Trafford Shipman, R.A.M.C., to Elizabeth, eldest daughte of Sir James Smith, of Eastbourne.

DEATHS

CROMBIE.—On Oct. 29th, at Farnham, John Francis Crombie D.S.O., T.D., M.D. Edin., D.P.H., Lt. Col. R.A.M.C.(T.).
JOHNSTONE.—On Oct. 29th, at Alfreton, Derbyshire, Thomas Johnstone, M.A., M.D. Edin.
MARTIN.—On Oct. 28th, Thomas Muirhead Martin, M.D. Edin. of Bickenhall Mansions and Harley-street, W.
ROBERTS.—On Oct. 28th, at Portsmouth, Arthur Hamilto Stewart Roberts, M.D. Dub., aged 65.
SMITH.—On Oct. 27th, after an operation, Frank Campbel Smith, B.Sc. Lond., M.R.C.S. Eng., of Eltham-road, Lee aged 38.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices o Births, Marriages, and Deaths

GIFTS TO HOSPITALS.—Mr. Alexander G. Maclear has given £10,000 to the Royal Victoria Hospital, Bournemouth, the same sum to the Hampstead General and North-West London Hospital, and £5000 to the Cottage Hospital at Letchworth.

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[1] Love, Marriage, and Romance in Old London. By C. J. S Thompson. London: Heath Cranton Ltd. 1936. Pp. 256. 10s. 6d

ADDRESSES AND ORIGINAL ARTICLES

DEATH IN ADDISON'S DISEASE *

(FUNCTIONAL RENAL FAILURE)

By C. Jimenez-Diaz, M.D.

PROFESSOR OF MEDICINE IN THE UNIVERSITY OF MADRID

The disease resulting from adrenal insufficiency, which was first described by Addison, occurs with great frequency in Spain. It is a matter for legitimate conjecture whether there may be in Spain certain constitutional peculiarities related to the predominance of dark-skinned individuals, the frequency with which hypotonic and hyperpigmentated persons are encountered suggesting the possibility of a constitutional hypoplasia of the suprarenals. It is this which first attracted my attention to the various mechanisms associated with this disease and led to the choice of this subject for the present study.

Death in Addison's disease may be occasioned by intercurrent disease, but more frequently a series of progressive symptoms appears, corresponding directly to the diminution of suprarenal secretion, which becomes steadily worse and leads to a true suprarenal death. This presents itself sometimes as a clinical picture of simple coma, sometimes in an abdominal form, and sometimes as a convulsive delirium; but the mechanism is in all cases the same. By the use of active extracts of the suprarenal cortex it has been possible to keep alive adrenalectomised animals and to create in them, by using various doses of the extract, the different syndromes of adrenal insufficiency, and so to study the metabolic characters of each of these; in this way it has been possible to learn the details of progressive adrenal insufficiency right up to death and to compare the symptoms with those revealed by the study of Addison's disease.

We know to-day that in these cases disturbance of carbohydrate metabolism is not the primary cause of death. Numerous studies by myself and other workers have established this. On the other hand there are two factors to which the utmost importance has been attributed:—

(1) Dehydration or diminution of the volume of the plasma, and

(2) Diminution in the sodium-content of the blood, a hypothesis which has led recently to the belief that the cortical hormone is the regulator of the blood-sodium.

Each of these disturbances has been considered to be the principal factor, although since the work of Loeb and his collaborators, and Harrop and his followers, there is more and more general accord in favour of the second hypothesis.

The Acid-base Equilibrium

The basis of my personal conception of the mechanism involved was the study of the acid-base equilibrium of the blood, and was established before the authorities quoted above had demonstrated the importance of sodium loss. It has been far too little recognised that in all grave cases of Addison's disease a marked acidosis occurs.

One case of death from acidosis I have published [1]; Marañón and Morros [5] have collected their cases of diminution of the alkali reserve in Addison's disease, noting how frequent this is; Swingle and Pfiffner [6] have recorded low figures for the alkali reserve in eight out of ten cases studied during crises. All the cases which have come under my own observation in coma have exhibited this diminution of alkali reserve, sometimes only during the last days, but more frequently arising gradually.

Is this acidosis the cause of death? A dogmatic reply is difficult. If we ask whether this is a true acidæmia we must reply in the negative, because, even if the alkali reserve falls, the pH, measured electrically, varies, in our cases, very little from the normal; it is indeed doubtful whether acidosis is the direct cause of death in any disease unless there are gross deviations in pH. I recently saw a case of nephritis with a pH of 7·03 without any grave symptoms; the probability is rather that the state of acidosis is the physical sign of some profound disturbance which is of primordial importance.

Are we justified in believing that in Addison's disease the lowering of the alkali reserve is something more than a coincidence and has it some deeper significance? Such an acidosis might be due to: (1) over-production of acid, (2) a disorder of the acid-base regulating mechanism following dehydration, (3) renal insufficiency. Let us examine these three mechanisms separately.

OVER-PRODUCTION OF ACID

It has been noted that there may be an excessive production of ketone bodies in certain cases. I have observed this once and Swingle and Pfiffner have also done so. But such cases have been examples of inanition following prolonged vomiting, starvation, &c.; without such factors I, like Harrop, have not observed it. One cannot therefore attribute the coma or the acidosis of Addison's disease to ketosis. In these very cases the lowering of the alkali reserve had been noted before the apparition of ketosis; I have also noticed an over-production of lactic acid in Addison's disease; although Swingle and Pfiffner [6] and Thaddea [7] have quoted normal figures for lactic acid, Diaz-Rubio and others [2] in our institute have noted very high figures during periods of adrenal decompensation. At first this led us to believe that accumulation of lactic acid might be the cause of the acidosis, but this is clearly impossible. When the total organic acid in the urine in Addison's disease is estimated one finds sometimes a slight increase and sometimes a more marked increase; it is certain that, apart from lactic acid, other acids of unknown origin accumulate in Addison's disease. It is quite evident from these and other facts that if there is some over-production of acid there must be other factors of greater importance.

DEHYDRATION

In my earlier studies I believed that the acidosis of Addison's disease was the result of dehydration. Marriott has noted that in various anhydræmic states a type of acidosis appears which is the result of the necessity for economising water and eliminating various active molecules. Sodium bicarbonate is broken up because its anion is eliminated by the respiration and its kation combines with acid. In such experiments one notes a great diminution in the formation of ammonia which we explain as being due to the necessity of the blood to eliminate sodium in order to protect its osmotic properties.

Examples are given in the papers cited in the references. In all the cases which we have been able to study during a crisis the formation of NH_3 was

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* An address delivered at the Middlesex Hospital on Oct. 6th, 1936.

extremely feeble in spite of extreme acidosis. In another observation I was able to establish that there are two fundamental facts in Addison's disease—the loss of sodium and the diminution in the production of ammonia. At this stage of my inquiries the train of reasoning appeared to me to be as follows.

Adrenal insufficiency gives rise to the dehydration which had been noted in animal experiments by Stewart, Picot-Estrada, and others; this gives rise, as a defence mechanism, to a loss of sodium from the plasma and a failure of formation of ammonia, and, in consequence, to a progressive acidosis, which was increased by the over-production of lactic acid, sometimes by the production of ketone bodies, and possibly by other unknown acids.

In my medical institute in Madrid we have carried out certain studies in order to test the various relevant points. Particularly as regards the existence of dehydration, which appears to be demonstrated by measuring the water-content of whole blood, we reached the conclusion that the method is inexact. Blood is composed of one very watery element, the plasma (90–92 per cent. of water), according to the observations of myself, Bielschowsky, and Miñón,[4] and a second less watery element, the corpuscles, 60 to 68 per cent. in weight. In consequence every time that the relation of plasma and corpuscles varies, the total water-content of the blood should change. When the total of corpuscles increases the total content of the blood in water will be lessened in spite of the fact that corpuscles and plasma retain their respective natural degree of hydration. From this it follows that it is indispensable to measure both the water in the plasma and that in the corpuscles most carefully and by an exact technique which we have published in the above-mentioned studies. By this method we have studied the blood in several examples of Addison's disease, the results being given in Table I., in which it may be noted that in reality there is no dehydration either of the plasma or of the corpuscles. Dehydration is therefore not a reality amongst the clinical phenomena of Addison's disease, and in consequence it cannot be the originating cause of the phenomena which we are now considering. Further, in the studies of Loeb and Harrop, one may note polyuria accompanying the very commencement of the sodium-loss which confirms that there is not a true lack of water. The two essential facts, sodium-loss and diminution of ammonia, must therefore have some other origin. It is this conclusion which has led me to give special attention to the problem of the formation of ammonia.

TABLE I

Distribution of Water in the Blood in Addison's Disease

Observation.	Percentage of water in—		
	Total blood.	Plasma.	Corpuscles.
P. S.	79·93	90·84	66·84
R. M.	78·91	90·31	65·24
S. O.	80·94	91·52	68·25
E. D.	83·01	90·16	..
G. S.	80·42	91·93	..
Normal ..	78·81	90·92	65·68

AMMONIA-FORMATION

In a series of cases we have made a careful study of this subject and of the question of acid-base equilibrium.

One case was studied over a long period with particular reference to the relation ammonia/total acidity and the formula of Gamble; these methods reveal the intensity of sodium-saving by ammonia-formation. Results are illustrated in Table II. and in Fig. 1, the latter showing the evolution of the deficiency during the course of the disease.

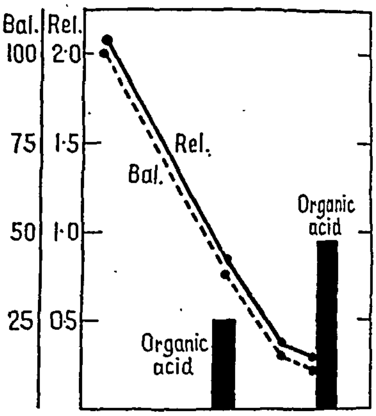

FIG. 1.—Evolution of the values given by [illegible] disease.

It therefore becomes established that the patient suffering from Addison's disease suffers from an increasing loss of the faculty of ammonia-production, side by side with a progressive loss of sodium from the plasma. This failure of ammonia-formation (for me the essential fact upon which everything else depends) has been observed by others but not sufficiently appreciated. Thus it is noted in the observations of Pfiffner, and, more recently, Loeb, Atchley, and Stahl[8] state that ammonia-formation is feeble and particularly defective during periods of exacerbation. Since the kidney is the organ where ammonia-formation takes place, and since at autopsy one does not find any renal lesion to explain the failure so similar to that which one finds in cases of grave nephritis, it seems that the only explanation is that some functional renal insufficiency must exist. However, before endeavouring to find out by what mechanism such a thing can be produced let us seek to discover which is the primary error, sodium-loss or defective ammonia-formation.

Recent experimental work has demonstrated that the removal of the suprarenal glands sets up a series of disturbances in the salt and water balance of the organism of which the principal are (*a*) an increased elimination of sodium by the urine with diminution of that element in the plasma; (*b*) a progressive increase in the nitrogenous bodies in the blood; and (*c*) a diminution in the volume of the plasma with considerable loss of water from the organism as a whole. Various authors have believed that each of these disturbances was the most important and that the others were secondary. Thus, Swingle and Pfiffner stated in 1933 that the principal function of the suprarenal cortex was the regulation of the blood volume. Whatever may be the ultimate truth, the favourite view, thanks to the work of Loeb[9] and Harrop[10] and his collaborators, is that the principal disturbance is the loss of sodium. According to this school the function of the suprarenal cortex is to retain sodium in the organism, and the moment this function is stopped the sodium ion is excreted in excess. It appears certain that the sodium loss cannot be explained by primary loss of water. For example, in various types of polyuria there is no diminution in the sodium level of the plasma, and in Addison's disease the absolute loss of sodium is greater than that of chlorine or of water. At the outset, when the sodium loss is most rapid, there is a polyuria but the concentration of sodium in the urine is increased. It would therefore seem

TABLE II.—ANALYSES OF BLOOD AND URINE IN CASES OF ADDISON'S DISEASE

(*a*) Cases in good health.
(*b*) Cases with mild adrenal insufficiency.
(*c*) Cases with marked insufficiency.
(*d*) Grave cases.

Rel. = NH₃/Total Acid. Bal. = Gamble's balance. All figures are expressed in mille-equivalents.

Subject.	Blood.			Urine.							
	pH.	Alk. res.	Cl.	pH.	CO_2.	Bicarb.	Org. acid.	NH_3.	Total acid.	Rel.	Bal.
G. S. (*a*) ..	7·33	59·9	96	5·35	..	..	..	47·1	22·5	2·09	14·8
" (*b*) ..	7·40	43·3	76	5·17	..	..	39·8	26·1	31·9	0·81	37·7
" (*d*) ..	7·40	..	..	5·08	..	..	..	15·5	40·4	0·38	19·5
" (*d*) ..	7·30	33·9	..	4·88	..	..	71·2	15·1	40·4	0·37	16·6
R. L. (*a*) ..	7·41	61·3	84	6·59	11·5	8·73	..	26·3	9·9	2·64	30·2
" (*b*) ..	7·39	45·8	80	5·46	..	..	..	22·4	15·9	1·40	28·6
M. I. (*a*) ..	7·37	52·6	95	6·90	1·73	1·48	..	9·2	4·1	2·22	19·4
P. S. (*a*) ..	7·55	47·9	83	5·78	3·43	1·10	26·3	25·9	13·2	1·96	37·9
E. D. G. (*b*) ..	7·31	39·9	..	5·05	..	..	..	23·5	36·6	0·64	..
" (*d*) ..	7·30	36·5	..	5·38	..	..	..	5·9	30·6	0·19	..
R. Z. (*b*) ..	..	61·1	105	5·46	2·30	0·45	73·0	2·4	28·0	0·08	29·8
" (*b*) ..	..	..	..	..	..	..	62·2	9·4	28·5	0·33	..
E. Q. (*c*) ..	..	26·1	..	5·24	6·05	0·75	69·5	25·9	37·6	0·68	40·0
" (*c*) ..	..	27·5	102	..	2·04	0·55	82·0	61·0	43·5	1·10	55·0

probable that the two losses are independent of one another, or, rather, that the kidney requires to eliminate an increased amount of water in order to get rid of the sodium.

The administration of sodium has an exceedingly favourable effect upon decapsulated animals, as it has upon sufferers from Addison's disease, even though such medication is not enough to keep them indefinitely alive if one does not simultaneously administer active cortical extract. In any case by giving sodium and cortical extract the condition of the animal is greatly improved and all the symptoms of insufficiency can disappear, but without the volume of the plasma ceasing to diminish unless the necessary quantity of water is administered; which proves that the symptoms of adrenal insufficiency are not due to mere diminution in the volume of the plasma.

Experimental Study

It is important to determine as exactly as possible the cause of the sodium loss. To confirm our clinical observations we have undertaken an experimental study. In the first place we have studied the respiration and ammonia-formation by the kidney in Warburg's apparatus in the presence of a substratum of amino-acids, comparing the behaviour of normal kidney with that of the kidneys of cats which had been subjected to decapsulation. These observations, which are being carried on in our Institute of Research by Barreda, Ochoa, and Villasante, are not yet complete, but the results at present obtained appear to confirm our clinical observations (Table III.).

There is some functional defect of the kidney, but how can this be explained in the absence of any renal lesion? It must not be forgotten that the kidney is an organ which consumes more oxygen than other organs, and that its oxygen consumption is much greater than what would be expected from its mass. We do not yet know what are the primitive substances employed by the kidney as a source of energy, but it is probable that they are partly in the nature of carbohydrates.

Hemingway and Phelp believe that one-third of the oxygen consumed by the kidney comes from the combustion of carbohydrate. The studies of Ferrari and Hoeber point in the same direction; it would seem to be a carbohydrate system without any useful *anaerobic* phase. The inhibitory effect of iodoacetic acid on renal secretion nevertheless demonstrates the probability that hexoses are esterified.

As long ago as 1916 Marshall and Davies, who observed nitrogenous retention in Addison's disease, believed that the suprarenals produced some substance necessary for the regulation of renal function, and that the latter became disturbed when this substance was lacking It is also very important to remember that diminished suprarenal secretion produces certain effects on muscles, others on the kidney, and others, as has recently been shown by Versar and Laszt, on intestinal absorption, and that similar effects can be produced by the administration of iodoacetic acid; this substance inhibits the absorption of fat in a manner similar to that seen after adrenalectomy, and that adrenalectomy produces a muscular asthenia arising, according to Kuczinsky and Nachmanson, from the same mechanism which produced the type of muscular contraction seen after impregnation with iodoacetic acid.

TABLE III

Respiration and Deamination by the Kidney of the Cat "in vitro"

(Substrate : d–1. alanine, M/50)

(A) NORMAL

No.	Q_{O_2}		Q_{NH_3}		$Q_{Amino\text{-}N}$	
	Sans.	Avec.	Sans.	Avec.	Sans.	Avec.
1 (*a*)	− 4·6	−10·9	0·0	7·39	..	..
(*b*)	− 4·6	−11·8	0·0	7·15	..	..
2 (*a*)	−10·1	−23·6	0·8	11·70	..	..
(*b*)	−10·5	−34·5	1·8	7·60	..	..
3 (*a*)	..	−10·1	0·0	10·01	..	..
(*b*)	..	..	0·0	4·82	..	..
4 (*a*)	..	−10·8	0·0	6·45	..	..
(*b*)	− 4·1	−15·3	0·5	5·14	1·39	−10·10

(B) ADRENALECTOMISED

No.	Q_{O_2}		Q_{NH_3}		$Q_{Amino\text{-}N}$	
	Sans.	Avec.	Sans.	Avec.	Sans.	Avec.
1 (*a*)	..	−11·2	0·92	4·13	..	..
(*b*)	− 3·93	−10·5	..	3·33	0·0	− 2·77
2 (*a*)	− 9·50	−19·5	0·0	1·54	..	..
(*b*)	..	..	0·0	3·94	..	..

Average Q_{NH_3}		
	Normal	7·53
	Adrenalectomised	3·23

Q_{O_2} = cubic millimetres of oxygen evolved per milligramme dry tissue per hour.

Q_{NH_3} and $Q_{Amino\text{-}N}$ are the ammonia and amino-acid nitrogen production respectively, expressed in similar units.

"Sans" and "Avec" refer to the absence or presence of alanine.

Is it not logical to suppose that the suprarenal cortex exercises its influence on a general chemical process of primordial importance to the organism in a manner exactly opposite to that of iodoacetic acid? It is on this hypothesis that I suggest, as a description of the state in which a perfectly healthy kidney, with a normal blood-supply, becomes incapacitated from fulfilling its function owing to a disturbance of utilisation—"*renal asthenia.*" We have particularly studied the intensity of hydrolysis of a phosphohexose ester by normal kidneys and by those of decapsulated animals. The remarkable difference is seen in Fig. 2.

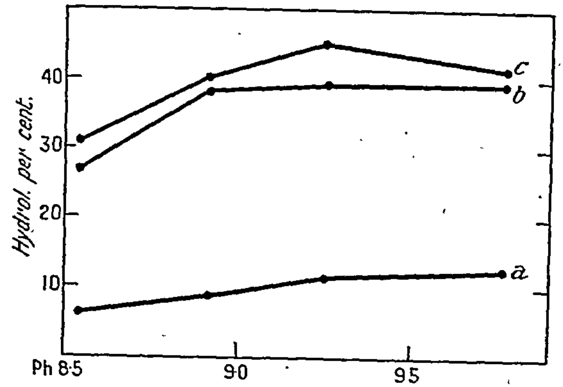

FIG. 2.—Renal phosphatase (Ph. average values) in (*a*) adrenalectomised cats, (*b*) an adrenalectomised cat subsequently found to have an accessory suprarenal, and (*c*) normal cats.

In brief, my belief is that the action exercised by the suprarenal gland on the elimination of the sodium ion is as follows—the cortical secretion acts upon the metabolism of the kidney as upon other organs, and any shortage of this secretion produces a defect in the liberation of that energy necessary for ammonia formation, by which the bases of the plasma are saved, and sodium in particular.

Other Evidence of Renal Insufficiency

The conception of renal asthenia or functional renal insufficiency of metabolic origin is certainly of some importance in other diseases; one immediately conceives that it may play a part in diabetes. It is clear that in the final stage of diabetic coma renal insufficiency plays a part which is shown not only by occasional retention of nitrogen, &c., but also in the diminution of the metabolic activity of the kidney; Snapper and Grunbaum, who demonstrated the rôle of the kidney in the destruction of keto-acids, believe that such insufficiency may be a very important fact.

Further than this, I have myself observed in many cases of diabetes, in the terminal period, that the formation of ammonia, previously satisfactory, ceases to occur in a degree sufficient to bring about the elimination of the acid excess associated with sodium retention. In such cases the loss of base is augmented and the necessary consequences follow. The lowering of the plasma-sodium in severe cases of diabetes and the beneficent effect of the administration of intravenous saline in such circumstances are well-known facts.

Insulin and cortical extract are the two hormones which have greatest effect on carbohydrate metabolism; it seems logical that the same effect of "renal asthenia" should be observed in insulin insufficiency as is found in Addison's disease. Working with Parra I made the following clinical experiment: in a case of severe diabetes, well controlled by diet and insulin, we diminished the insulin little by little whilst simultaneously increasing the ketogenic elements of the food; the immediate result was the lowering of the relation of ammonia to total acidity with increased elimination of sodium in the urine and diminution of this substance in the plasma, potassium being increased (Fig. 3).

From what has been said above it would seem that renal insufficiency may occur through disturbance of the internal metabolism of the kidney with a lack of ammonia-formation and a consequent loss of sodium from the plasma. This is equivalent to what normally happens in conditions of acidosis, but I believe that the pathogenic effect is not due to acidosis but is a specific effect of the diminution of the plasma-sodium. The consequences of this fall in the sodium-content of the blood are extremely interesting; if it is true, as Gamble has demonstrated, that the concentration of base in the plasma is constant, the fall of sodium must bring about a parallel loss of water in the serum and in the extracellular fluids, and simultaneously a loss of intracellular water which will carry potassium with it. Even if one believes with Peters that the cellular membrane is impermeable to potassium this may only be true in the normal state, because in pathological conditions it seems, according to the work of Darow and others, that such a loss of water and potassium from the intracellular tissues is possible. Such a loss is accompanied by cellular destruction producing an increase in urea and other nitrogenous bodies; this is demonstrated by the investigations of McCance on the effects of sodium deprivation. My own view is that this increase of nitrogen is more due to cellular destruction than to a diminution in "urea clearance."

In chronic renal disease there are two phases in the downward path towards terminal uræmia. A first phase with slow retention but with slight effect upon the general condition of the body, and a second grave phase in which nitrogen retention is progressive and irrecoverable. In addition to the increase in urea and creatinine in the blood there is retention of indican and aromatic bodies, with ionic disturbance; increase in potassium and diminution in sodium.

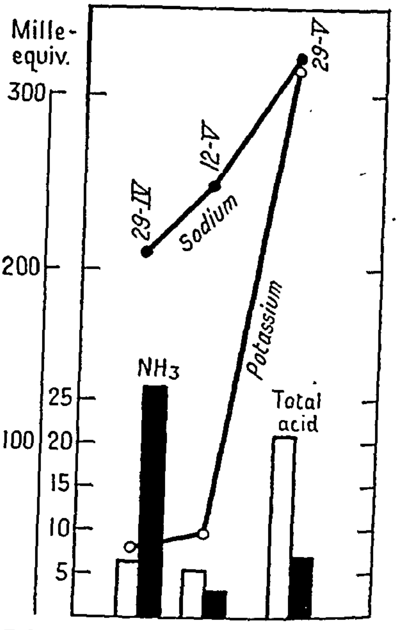

FIG. 3.—Ammonia formation and elimination of bases in a diabetic after withdrawal of insulin.

We know to-day that renal acidosis, marked by diminution of the alkali reserve, is due to defective ammonia-formation. Krebs has shown the same thing experimentally by the method of Warburg. The second progressive and irremedial phase of uræmia is accompanied by anæmia, wasting, and asthenia, or, in other words, by a hyper-destruction or "plasmolysis," to employ the phrase of Senator. It is clearly of great importance to endeavour to arrest the progress from the first to the second phase, and this may be accomplished if we understand the mechanism of the change which I believe to be as follows:—

(1) Lack of ammonia-formation by the diseased kidney.
(2) Loss of sodium, in consequence of the lack of ammonia.
(3) Tissue autolysis through loss of sodium.

The process is therefore the same as that which occurs in Addison's disease or in terminal diabetes, with the sole difference that the failure of ammonia-formation is due to renal destruction in Bright's disease, whereas in diabetes it is due to a metabolic defect by which the utilisation of oxygen and ammonia-formation become difficult for the kidney.

Conclusion

The thesis which I have put forward naturally requires further confirmation and much study; my sole desire to-day is to underline the importance of certain factors in the evolution of the so-called uræmic states, whether organic or functional, and to emphasise that amongst them occurs one which I call "uræmia of metabolic origin," not previously described, but, in my opinion, of great importance on account of the light it throws upon the progressive and fatal evolution of Addison's disease, diabetes, and certain other diseases.

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SOME TUMOURS AND ULCERS OF THE PALATE AND FAUCES *

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The subject of tumours of the palate is one in which I have long been interested, and in the course of twenty-five years I have dealt with a considerable variety of them. Tumours in this situation have commanded scant attention from surgeons since Stephen Paget published a paper about them fifty years ago, although sporadic cases have been reported and discussed. As far as I can ascertain from the literature, this country has provided more cases than any other country of Europe, or America. Palatal tumours are not so uncommon as is often supposed, but are rare enough to be thought worthy of record, and it is surprising what a large variety may be met with.

As far back as 1877 J. F. Cohnheim put forward an ingenious theory that the main source of origin for tumours consists in certain relics of fœtal tissues which, owing to their being superfluous or to their development being arrested, have never reached maturity but have remained quiescent in the midst of better developed tissues. The point at which the fault in development first arises is probably some early period of embryonic life when more cells are being produced than are needed for the formation of the part and a quantity of cells remain unused; of insignificant dimensions perhaps, but, on account of the embryonic nature of the cells, with great powers of proliferation. The region with which we are dealing is one which lends support to Cohnheim's theory, as it is one in which relics of fœtal tissue may be expected, for the palate is formed by a complicated folding in of fœtal structures.

Non-Malignant Tumours

THE MIXED PAROTID TUMOUR

It would not be possible to discuss in detail every variety of tumour that is met with. I will pass over the small papillomata and fibromata that are so commonly seen attached to the surface of the palate or faucial pillars and begin with that interesting tumour which is commonly known as the "mixed" or "mixed parotid" tumour, owing to its close resemblance to those curious tumours which occasionally appear in that gland. These are by far the most common tumours that occur in the substance of the palate, and at least 150 have been recorded. The method of origin of these tumours, in the parotid as well as in the palate (for clinically as well as histologically they present the same characteristics) has given rise to controversy. They used to be called myxoendotheliomata, although some considered that a carcinomatous element was present in some of them, but a number of different names have been applied to them. Most authors, following R. M. Fry, have now discarded the idea of their originating either from (1) the endothelium of lymphatic vessels, or (2) embryonic cells which have remained dormant, or (3) embryonic gland tissue, and believe that they are epithelial in origin and arise from fully developed glandular tissue. This was held by E. Krompecher as far back as 1900, who stressed their epithelial origin with peculiar mucoid and cartilaginous metaplasia. A. Fraser and, later, Fry have shown that the cartilaginous appearance in certain areas is merely due to a fibrillar condensation of the myxomatous tissue, with a resulting pseudo-capsular arrangement round the cells.

These tumours are for the most part very slow growing, and it is not uncommon for them to be present for many years before discovery. They cause no pain but attention is generally drawn to them while still small on account of some discomfort in mastication or interference with a denture. They are usually encapsulated and are generally regarded as comparatively benign in character. This, however, is not always the case and, particularly if the capsule is ruptured through trauma or if an incomplete operation is performed, the growth invades the tissue surrounding it, undergoes malignant changes, and may give rise to metastasis. Surgical treatment is as a rule simple as they shell out readily and if the entire capsule is removed cure is usually effected. In all operations inside the mouth I prefer the diathermic knife to the scalpel.

Recently I met with an exceptionally large example of these mixed tumours. Although it had apparently been present for several years and had progressed very slowly, it was thought to be malignant. The hard palate was involved as well as the soft, but there was no infiltration; the tumour was quite smooth and the mucosa over it intact. I removed it with the diathermic knife and found that while it had eroded much of the hard palate in the places where this had occurred the bone was smooth and firm.

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* Abstract of the Semon lecture of the University of London delivered at the house of the Royal Society of Medicine on Nov. 5th, 1936.

Another patient was sent to me in 1928 by the late Sir Percy Sargent with the history that twenty-two years previously he had removed a typical mixed tumour from the right parotid gland and there was now a lump in the palate. I found a small, smooth tumour about the size of a pigeon's egg in the right side of the soft palate; the margins of the growth were ill-defined and it was not freely movable. At the operation the main part of the growth shelled out easily but the deeper part was firmly attached along the border of the internal pterygoid plate, leaving on removal a rough surface. I placed four one-milligramme radium needles in the deeper part of the wound and left them in for five days. Healing took place and the palate remained normal. Microscopical examination showed a typical mixed parotid tumour. Two years later the patient returned with a lump in the right parotid region and I found a firm nodular tumour the size of a walnut. On removal it presented the same microscopical appearance as that of the tumour removed from the palate. It is interesting that so long a time as twenty-two years should have elapsed between the original parotid tumour and the palatal one, and that the recurrence in the parotid should have taken place so soon after the removal of the palatal tumour. It may be that the deeper part of the palatal growth was directly continuous with the parotid region and that the radium—rather a small dose—whilst destroying the tumour cells in the region of the pterygoid plate, stimulated those that were more deeply situated.

HÆMANGEIOMA AND HÆMANGEIOFIBROMA

These are rare tumours in the palate, but it is advisable to consider the possibility of their occurrence, as in two cases that I know of an incision was made in the belief that a peritonsillar abscess was being dealt with, with almost fatal results. In vascular tumours diathermy is particularly valuable. In one case I saw in 1913 after it had been incised the patient was almost moribund from hæmorrhage. As the growth felt very firm and seemed to infiltrate the palate a sarcomatous condition was suspected. The operation for removal was a severe one as it was before the days of electro-surgery and necessitated an external approach as well as one through the palate. The external carotid was tied and a block dissection of glands was made, but there was no evidence of malignancy and the growth was found to be a hæmangeiofibroma. The patient is still alive and well after twenty-three years.

FATTY TUMOURS

I have seen only one fatty tumour in the palate A. Alagna, in describing twenty years ago a unique case of lipoma myxomatosum, came across only four cases of palatal lipoma. A few other cases have since been recorded but the number is still very small. My case resembled one reported by Mr. Herbert Tilley in 1919 in that it pushed the tonsil downwards. There was also a swelling in the submaxillary region which I decided to remove for biopsy, but when I cut down on it I found it continuous with the palatal tumour. Rapid section and staining in the theatre showed it to be a fibrolipoma. I proceeded with the removal of the growth through a Kocher's incision and, by extending the dissection from outside, was able to identify the pterygoid plates and shell out the whole growth, including the palatal portion, without making any wound in the palate. The tumour was of considerable size, botryform in appearance, and seemed to be encapsulated. The boy is alive and well after six years.

ADENOMA AND ADENOCARCINOMA

Adenoma is represented in my series by only one case seen seventeen years ago. The tumour was embedded in the soft palate. There was no infiltration and the growth, which was encapsulated, was easily removed with the diathermic knife.

Adenocarcinoma is still rarer. G. Finder, in an exhaustive study of the literature, found only six cases recorded. My only case was a woman of 74 sent to me in 1929 with a history of a tumour noticed only two months previously. It was firmly fixed in the hard and soft palate, and the mucosa over it, which was intact, showed numerous dilated vessels. I thought it was an adenoma, but when removed with the diathermic knife it presented the structure of an adenocarcinoma arising from the mucous glands. The patient remained well for four years and then noticed a further lump in the side of the palate. I removed this, along with the surrounding portion of the palate, and there has been no further recurrence. This type of tumour appears to grow slowly.

OSTEOMATA

These have been occasionally described in the palate. G. Horsley, in America, has given a good account of a case with an illustration. This occurred almost in the midline and was definitely nodular and larger posteriorly than in front. It was covered with intact mucosa and was removed without difficulty with gouge and bone forceps with an area of healthy bone around it. In structure it was a typical osteoma. I have not found any record of a similar case. Many years ago I had under my care a small boy with a hard oval bony swelling under the mucosa of the hard palate in the midline. It was quite smooth and was said to have been present for many years. I exhibited the case and it proved to be an example of "torus palatinus," an anatomical peculiarity first described by Rickman Godlee, consisting essentially of a projection downwards of the diploe covered over by compact bone. In one case I have since seen the swelling was not symmetrical, but presented an extra lobe on one side. This might have been regarded as osteoma, but I recall that in the examination of nearly three thousand skulls Godlee did not find a single example of true osteoma.

Malignant Tumours

All the tumours so far mentioned have been solid tumours in the substance of the palate with no ulcerated surface. In malignant disease of the palate we are usually confronted with an ulcerating tumour or a raised plaque with a varying amount of infiltration around. But in one type of epithelioma there is a diffuse shallow ulceration with a serpiginous outline and little or no infiltration at the edge. This resembles tuberculous ulceration; it is not very painful and the malignant nature is often not suspected until a piece has been removed for microscopical examination. The superficial invasion of a wide area and the fact that different portions show varied characteristics is typical. The malignancy is of high degree and both the cases with which I have had to deal did badly after excision. Growths of the tonsil tend to spread either upwards into the palate or downwards into the base of the tongue. Although tumours in this region may present similar clinical appearances, it is seldom if ever possible to estimate the chances of a successful result.

OPERATION

The method I employ for the treatment of these cases is excision of the growth and surrounding tissues in one piece with the diathermic knife. I have employed this method consistently since 1916 but lay no claim to priority as I believe that Mr. Norman Patterson employed a somewhat similar method before me and he refers[1] to a case of Mr. Lambert Lack's in 1913. As I have evolved a particular technique a few words about it may not be out of place. In dealing with palatal and faucial tumours it is of extreme importance to be well wide of the apparent growth, as the lymphatic anastomosis in the palate is very free.

For this reason I begin the incision on the other side of the uvula, carry it up through the soft palate and deepen it until the whole substance of the soft palate is cut through and the edge of the hard palate is reached. The incision is then turned outwards along the edge of the hard palate to the hamular process. The shining tendinous fibres of the internal pterygoid muscle can always be recognised and the incision is carried along this muscle until the alveolar border is reached just above the mylohyoid ridge. The incision is then carried across the floor of the mouth, the exact point depending on the extent forward of the growth. As the incision is deepened in this situation the lingual nerve is seen and troublesome bleeding may occur from branches of the lingual artery which have to be picked up and tied. The incision is then carried into the substance of the tongue towards the middle line and then backwards through the tongue musculature to turn outwards behind the posterior faucial pillars. The growth and surrounding healthy tissue is thus removed in one piece. If there is any oozing from the raw surface it is easily stopped with the diathermic button or by applying an artery forceps and touching this with the spark. A large pack of gauze impregnated with bismuth subgallate and paraffin is held in position in the cavity with a couple of stitches and removed the following day. The wound heals under a very dirty-looking slough which separates in about a fortnight.

There are many advantages to be gained from diathermic excision. The absence of bleeding gives a remarkably clear field. The depth of penetration of the spark ensures the destruction of a wider area of tissue than that removed, and the risk of distributing cancer cells in the wound is less than with scalpel and forceps.

During the years 1916–31, I have dealt with 61 cases of malignant disease of the palate and fauces. Of these, 15 (25 per cent.) were alive more than five years after operation. Of the remaining cases no less than 22 died within the first year (36 per cent.); whilst the remaining 24 (39 per cent.) lived for periods varying from one year to four years. Of the 15 cases that passed the five-year period, 1 is alive nineteen years after the operation, 1 survived for fifteen years, and the rest between five and ten years. These figures may not seem very satisfactory, but it must be remembered that the cases were not selected in any way; many were regarded as hopelessly inoperable in the ordinary way, and many were complicated by malignant glands in the neck which necessitated block dissection on one or both sides. Gland involvement probably affects the prognosis adversely by more than 50 per cent.

OTHER METHODS OF TREATMENT

Various forms of radiation have been employed during the past decade with an increasing degree of success, and with the improvement in the technique of radium application, mainly due to E. G. Berven of Stockholm, some striking results have been obtained. In this country the local application of radium and the application of a 5-gramme radium bomb externally has been in use for too short a time to estimate its ultimate value. The results so far are promising, and it will be interesting to see how the common squamous-celled carcinoma responds to radiation. Striking successes in other countries have been obtained in the epidermoid carcinoma described by Regaud and Schmincke under the name of lympho-epithelioma. This may arise from modified epithelium overlying lymphoid structures in the tonsils or pharynx, may occur in young subjects as well as in old, grows slowly but tends to produce early metastases in the neck and elsewhere, and shows a marked primary response to radiation. Ewing, in America, recently analysed 200 cases of malignant disease in the region of the tonsil and found that only 4 per cent. were lympho-epithelioma, whereas 72 per cent. were squamous-celled carcinoma. There is no single example of lympho-epithelioma in my 61 cases, and this is also the case in the series of 51 cases recently described by Mr. Norman Patterson. This apparently racial variation in the type of malignant tumour shows how difficult it is to make comparisons.

Ulcers

Passing over the massive infiltrations and ulceration associated with tertiary syphilis and Vincent's angina I will consider briefly those cases in which a shallow superficial ulceration is the predominant feature, as it is these cases which so often give rise to difficulty in diagnosis. We have all been brought up to keep the possibility of cancer, syphilis, and tubercle in the forefront of our minds—with the streptococcus, Vincent's angina, moulds, and fungi as accessory to the main issue. I have already mentioned the form of carcinoma in which diffuse shallow ulceration is the main feature. Syphilis in the palate and fauces manifests itself in the same protean way as is the case elsewhere and the lesions may resemble, though never quite exactly, those caused by other agents. Tuberculosis of the fauces is almost invariably seen in patients who are in the last stages of pulmonary tuberculosis. It is agonisingly painful and rapidly progressive; but occasionally cases are seen in which there is a local manifestation without any obvious lung disease.

One such case came under my notice a few years ago. There was a shallow ulcer extending from the upper part of the tonsil on to the palate which was almost painless. Sections from it showed giant-celled systems and tubercle bacilli. There was no trace of lung involvement, either clinically or by X ray examination. I decided to excise the ulcer and this was done with the diathermic knife under local anæsthesia. Healing took place and there was no further local manifestation, but within a year the patient was dead from rapidly progressive pulmonary tuberculosis.

The more chronic form of tuberculosis that we call lupus provides many cases of shallow ulceration in the fauces and usually responds to treatment satisfactorily, but there are intermediate forms which, for want of a better term, we may call "lupoid" which often resist treatment and show a tendency to relapse.

A recital of the various activities of the streptococcus would lead me too far afield. I will just remark how very chronic and resistant to treatment some streptococcal infections may be, more particularly those that are due to *S. viridans*.

"Precancerous Epitheliomatosis"

There is only one other form of shallow ulceration which is of considerable significance and may have wide implications. It is the condition that I described eighteen months ago under the designation "precancerous epitheliomatosis." I believe this to be a definite entity. In the early stages there is a diffuse shallow ulceration with raised whitish plaques and a milky pellicle covering the outer zone. In

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[1] THE LANCET, 1934, ii., 633.

The following are clotting-times taken by this method from 11 normal persons :—

W.	4 mins.	H.	5.25 mins.		
S.	4·5 „	Squire	4·5 „		
F. M., jun.	5 „	Timperley	4·5 „	(1st test)	
F. M., sen.	6 „	„	4·0 „	(2nd „)	
M.	4·75 „	Naish	5·5 „	(1st „)	
T.	5·5 „	„	5·5 „	(2nd „)	
P.	3·5 „				

Irrefutable proof of benefit in a disease so remarkably fluctuant as hæmophilia is difficult to obtain, and the natural tendency of both doctor and patient is to err on the optimistic side. Periods of natural remission are bound to coincide sometimes with the administration of a hypothetical remedy, and only critical observation of a large number of cases will correct fallacies of premature deduction. No more claim is made at present than that favourable results have been obtained in those cases where it has been possible to keep patients steadily under treatment for a long period, and critically to compare their condition both before and after treatment. It is obvious that testing on a much larger scale and for a longer time will be necessary to establish the limits of the new remedy.

In order, however, to make our tests of efficiency more exacting, patients were in all cases encouraged to carry out those actions which previous experience had told them were likely to bring on painful joint swellings. For instance the man who had previously found that wielding a four-pound hammer for 15 consecutive minutes would almost always bring on a week's disability of the right elbow was, while under treatment, set to use a similar hammer for much longer periods (Case 6); and a boy (Case 4) of fifteen who had used crutches for many years, because bearing his weight on uneven ground was liable to cause one or other ankle to swell, was persuaded to jump from chairs, kick footballs, and run freely over all sorts of uneven ground. Patients were also encouraged not to spare themselves the knocks and cuts which by habit they had avoided.

Some patients would respond readily to such encouragements, but with others ingrained caution prevented the full application of our instructions.

In addition to these practical tests, it was thought desirable to carry out the more stringent test of dental extraction in certain cases where sepsis, decay, or undue retention of primary teeth made it otherwise advisable. In 11 tooth extractions in four patients no wool or plug of any description was used. Altogether 24 teeth have been extracted from six patients, and in only one case has it been necessary to resort to any adjuvant such as the local application of snake venom, or giving a blood transfusion (Case 7). The extraction of 5 teeth in this case was a very severe test and, moreover, it was realised after the event that certain errors in technique had been committed, details of which are given below. The hæmorrhage was by far the largest we have encountered, but it does not appear to have alarmed the patient unduly because he subsequently made arrangements to have 2 more teeth extracted. Unfortunately his wife's illness necessitated his returning to London before this could be done. These tests by means of dental extraction have been most instructive, for by observation of the surface of the gum and the stoppage of bleeding it has been possible to judge the rate of the action of the substance when given by either intravenous or intramuscular route; and also the length of time that a single dose remains effective. These observations tend to show that injection by the venous route begins to act rapidly (in some 5–15 minutes) but that the length of time during which a single dose retains its efficacy varies with the patient and his particular state at the time. The dose required to check oozing from the torn gums and to effect early healing of the tooth sockets is in general much larger than that required to ward off hæmarthrosis or bruising, and it has to be repeated at shorter intervals.

Another interesting observation which tends to demonstrate the efficacy of the injections is the fact that sometimes venepuncture, with a tourniquet in position above, before the administration of the first injection, or intramuscular puncture for the purpose of giving a first injection, is followed by the appearance of a superficial or deep hæmatoma of many inches' diameter; whereas similar manipulations, when the patient is under the influence of an adequate dose, cause no bruise. One patient who had his first four injections on four successive days showed a succession of diminishing hæmorrhages. After the first puncture of the right triceps there was a large deep hæmatoma extending almost from shoulder to wrist; the next puncture into the left triceps produced a hæmatoma of about 1 in. diameter, the third one of a centimetre, and the fourth no visible effects (Case 7). The influence of intercurrent infection, with a rise in temperature, in promoting a recurrence of bleeding in Case 5 is of interest, and the apparent control of temperature fluctuations by injections in Case 8 may not be without significance, although there has been no further chance of investigating this.

It must be emphasised that no claim is made to cure hæmophilia by the treatment suggested, but merely to control hæmorrhage and ameliorate the general condition during exacerbations of the disease and during minor operative procedures; in order to do this adequately repeated injections are necessary. Reference to the cases described below will show that widely varying amounts of material have been used to control hæmorrhage, and it is recognised that the quantities used in Case 4 were excessive; but on the other hand it is clearly shown that large doses may be given with impunity and with no fear of damage to veins or of intravascular clotting. There has so far been no evidence of a negative phase succeeding a course of injections, but this possibility must be borne in mind, although difficult to establish conclusively in view of the recognised fluctuant nature of the affection.

In the treatment of Case 7 certain errors of judgment were made, from which we have learnt much. First, the absolute necessity of a physiological test is apparent. Secondly, it is now realised that recurrence of the bleeding state may in some patients be so rapid that it is essential to have a large stock of injection material in hand, and to anticipate rather than wait for the recurrence if the patient is to be kept in first-class condition. Particularly is this so in the night when a few hours' bleeding may easily occur without attracting much attention. In this connexion we think it advisable that dental extraction should be carried out as early as possible in the morning so that the period of recurrence may be carefully noted before the day staff goes off. Thirdly, it emphasises the fact, which we had already appreciated to some extent, that the doses required to control external bleeding are larger and more frequent than those for internal bleeding.

Description of Cases

The following thirteen cases are not a selected group, but comprise all that have so far been treated by us.

CASE 1.—Aged 37. (Access by courtesy of Dr. J. Clark and of Dr. J. O'Callaghan.) Admitted C.G.H.* on March 7th, 1936; discharged on April 1st and treated since discharge. He is an orphan knowing little about his relations, and no family history of hæmophilia has been obtained. When 18 months old, after a cut on his forehead, he bled for three weeks. After this he was in and out of hospital throughout his childhood. He estimates that he has been in the S.R.H. between 40 and 50 times for swollen joints or external bleeding, and that his school attendances added together did not total more than 1 year out of the usual 8. During childhood and adolescence he had repeated joint swellings and subcutaneous hæmorrhages, either spontaneous or following slight injury, and there has rarely been an interval of two weeks without some manifestation of the disease. Bleeding from the gums has also been troublesome. Some slight improvement has been observed since the age of 20. He was employed during the war but lost more than half his working hours from disability, and he has not worked since.

On admission he was very pale; right elbow swollen and painful; hæmatomata over left wrist and middle finger and over right thigh. Dysphagia and pain in neck, with purple swelling of post-pharyngeal wall. Left ankle nearly ankylosed; movements very severely curtailed in right ankle and both knees, slightly impaired in left elbow.

Before treatment blood withdrawn from a vein gave no clot up to 72 hours in the tube used, and it was never possible to get any measure of clotting-time.

Treatment began on March 12th when 25 mg. was given intravenously. Subsequent injections are tabulated below. Improvement was definite and rapid; bleeding from the gums ceased and there have been no more joint swellings or pain. On April 3rd the proximal phalanges of his left hand were crushed by a door so severely he thought they were broken, but the subsequent bruise was insignificant. He has also had three or four cuts on the hand, which would previously have bled for a day or two but which have not bled for more than a few minutes. Between April 5th and 26th injections were deliberately withheld and observations made on clotting-time: these are given below. On the 26th a bruise 3 in. by 1 in. appeared on the forearm and injections were begun again; with this exception no hæmatomata have appeared since treatment began.

Date.	Clotting-time (mins.).	Injections (mg. intravenously).
Mar. 12	No clot in 72 hrs.	—
„ 12 (7 P.M.)	—	25
Mar. 13	10	—
„ 16	18	—
„ 17 (11.40 A.M.)	—	20
Mar. 17 (2.40 P.M.)	4¾	—
Mar. 18	8	—
„ 20	10	—
„ 24	16	—
„ 24	—	100
„ 25	10	—
„ 27	14	—
„ 30	—	40
„ 30	11½	—
Apr. 5	15	—
„ 5	—	10
Apr. 6	5	Injections withheld.
„ 10	8	
„ 18	23	
„ 24	35	
„ 26 (10 A.M.)	100	
Apr. 26 (12 noon)	—	10
Apr. 26 (3 P.M.)	8	—
Apr. 27	14	—
„ 28	16	—
„ 29	18	—
„ 29	6	20
„ 30	12	—
May 5	22	—
Oct. 5	45	30
„ 6	18	—
„ 15	47	30 M.A.
„ 16	19	—
„ 19	27	—

M.A. = mucic acid derivative.

As there was evidence of sepsis at the roots of several teeth it was decided to attempt the removal of the worst. On May 23rd at 10 A.M. he was given 40 mg. intravenously and fifteen minutes later $\underline{|2}$ was extracted. There was no immediate bleeding, but during his midday meal the socket bled for five minutes and about 1 oz. further was lost during the night. Injections of 40 mg. were repeated on May 24th and 25th. Bleeding ceased completely on the 25th and the total loss was estimated at 2–3 oz. On June 2nd at 10 A.M. 10 mg. was given intravenously and $\underline{|3}$ was extracted. Another dose of 10 mg. was given at 9 P.M. Bleeding had completely ceased within twenty-four hours and the total loss was estimated at 1 oz. On June 5th at 11 A.M. 50 mg. was injected and $\underline{2|}$ was extracted. Oozing occurred for the first six hours after extraction but none subsequently. Two more doses of 25 mg. each were given within the first twenty-four hours. On June 10th a small piece of alveolar bone was found broken off in the socket. This was extracted after a further injection and there was a little intermittent hæmorrhage during the next three days. No packing was placed in the socket after any of these three extractions. The clotting-time of this patient before the first injection was the longest of which we have any record.

CASE 2.—Aged 31. (Access by courtesy of Dr. O. C. Hudson.) One brother, aged 14, died in 1911 from bleeding after small wound of cheek. Another brother is a hæmophilic (Case 3). From the age of 2 years there have been painful swellings of joints, all limb joints having been involved at one time or another. The duration and severity of recurrences varied with general condition and the patient had "good" periods lasting 3–6 months in which joint attacks were mild and lasted only 12–24 hours; in "bad" periods the attacks lasted 4–14 days with intervals of about a fortnight. In April, 1936, he was getting towards the end of one of the worst periods he had ever experienced. There is the typical history of recurrent hæmatomata, and severe bleeding following minor injuries. Lifting heavy weights caused deep hæmorrhage into muscles. His school attendances totalled about 3 years of the normal 8. No improvement has been observed in adult life, except that there has been less bleeding from the gums. With his brother (Case 3) he has carried on a boot repairing business, but is liable to be off work for long periods.

He has medium pallor; the lower limbs are somewhat wasted. Movements of knees limited to about 30°; right foot fixed in position of plantar flexion and inversion.

Date.	Clotting-time (mins.).	Injections (mg. intravenously).
Apr. 17	30	—
„ 18	27	—
„ 19	29	—
„ 20	32	—
„ 23	40	—
„ 23	—	10
„ 23 (2 hrs. later)	14	—
Apr. 26	21¼	—
„ 29	31	—
May 3	40	—
„ 3 (later)	—	10
May 4	22	—
June 30	35	—
„ 30	—	30
„ 30 (2 hrs. later)	14	—
July 1	19	—
July 7	30	—
July 7 (40 mins. later)	—	20
July 8	17	—
„ 15	30	—
„ 15	—	20
„ 16	18	—
„ 20 (8 P.M.)	20	—
July 20 (9 P.M.)	—	25
July 20 (9.20 P.M.)	10	—
Oct. 5	65	—
„ 6	65	30 M.A.
„ 7	20	—
„ 15	40	30 M.A.
„ 16	18	—
„ 19	27	—
„ 24	40	30 M.A.
„ 25	23	—

Clotting-times were found to be about 30 mins. and injections were begun on April 23rd and given subsequently as shown below. Since that date there has been such complete immunity from symptoms as he has never before experienced. There have not been joint attacks of the mild variety which used to occur even in "good" periods. Heavy or prolonged muscular work has produced no deep swellings, and shaving cuts clot at once. Early in August he sustained a cut on the palmar surface of the right hand 1 in. long and ¼ in. deep. This bled for five minutes only. (Previously in a "good" period, such a cut would have bled for 3–4 days, even if bandaged and splinted. The scar of this cut is visible and substantiates his account of it.) On June 19th two upper canines were extracted. An hour before extraction the clotting-time was 33 mins. which is about his normal average without injection. An intravenous injection of 35 mg. of the substance was then given which reduced the clotting-time to 10 mins. Two hours after extraction there was a clot about the size of a pea in each socket and after this no further bleeding occurred.

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* In these notes the following abbreviations are used:—
R.I.S. = Royal Infirmary, Sheffield.
S.R.H. = Sheffield Royal Hospital.
C.G.H. = City General Hospital, Sheffield.

On Oct. 20th he dropped a cobbler's last (4 lb.) from a height of about 4 feet on his second right toe and crushed the nail; next day the toe was swollen but no discolouration was visible. On the following day the nail was pulled off and there was no more bleeding than would be expected from such a raw surface in a normal person. On Oct. 26th the wound was healing and there had been no further bleeding.

CASE 3.—Aged 38 (see Case 2). (Access by courtesy of Dr. Hudson.) This man seems to have suffered from a milder form of the disease than his brother and his working capacity has been considerably greater. He has learnt to avoid joint swellings by careful movement; twists or jolts invariably cause some degree of swelling in a joint, which begins by a feeling of tightness and heat coming on suddenly in the affected part. "Good" periods have lasted 2 or 3 years, "bad" periods about 8 months. Occasionally there have been periods of rectal bleeding; he had a severe hæmorrhage in the alimentary tract in 1929, but has never been in danger of his life. As a child he only lost a total school time of about 1 year out of the usual 8, but during late adolescence he was frequently incapacitated by epistaxis and lost working time in later years.

Treatment was begun on April 20th. Prior to this, observations on clotting-time never showed it to have a value less than 40 mins. Like his brother he has experienced during treatment complete immunity from unfavourable symptoms, such as never before. There has been no feeling of tightness or heat in his joints; he can walk better and carry on his work with a greater feeling of confidence. He has often hit his left hand with the hammer so as to hurt himself without producing a bruise, and on one occasion, July 30th, he banged his right elbow heavily on the sewing-machine without any joint trouble following. On July 24th he cut his right thumb and blood spurted from the wound. After applying a bandage he resumed work immediately and in two days removed the bandage. (Previously such a wound would have necessitated loss of a week's work.)

Date.	Clotting-time (mins.).	Injections (mg. intravenously).	Date.	Clotting-time (mins.).	Injections (mg. intravenously).
Apr. 15	60	—	Apr. 27	23	—
„ 16	45	—	May 3	40	10
„ 17	40	—	„ 4	18	—
„ 18	43	—	Oct. 5	63	30 M.A.
„ 19	40	—	„ 6	18	—
„ 20	45	5	„ 15	33	30 M.A.
„ 21	30	—	„ 16	16	—
„ 23	35	—	„ 19	24	—
„ 26	47	10			

In this man certain teeth needed to be extracted because of sepsis and between June 18th and July 2nd a total of 6 were extracted under the influence of protective injections. On the 18th an upper canine was extracted after 25 mg. had been given and all bleeding had ceased within twelve hours. On the 24th an upper incisor was extracted after 45 mg.; one teaspoonful loss in first 12 hours and afterwards only a few drops. On the 29th two lower central incisors were extracted after 10 mg.; slight bleeding for 36 hours. Finally on July 2nd two lower lateral incisors were extracted after 50 mg.; apical artery in one spurting after extraction. Bleeding ceased in ten minutes and there was no more until nearly three days later (July 5th) when it started again rather profusely and was only finally checked on the evening of the 7th after four injections. Each injection was followed by almost immediate cessation, but recurrence took place some 12 hours later.

CASE 4.—Aged 15. Admitted to nursing-home from May 24th to June 14th by the courtesy of Dr. Hugh Ashby and Dr. G. B. Macgregor of Manchester. One brother is normal. A maternal uncle was a bleeder and died of bowel hæmorrhage aged 14. The patient has had frequent bruising from early infancy. Any thoughtless lifting of him causes a painful deep swelling in the muscles of the trunk. Even lying in bed has caused pain and inability to straighten the back. Swelling and pain in joints began at the age of 4 and these attacks have subsequently been more frequent; walking on uneven ground produces joint attacks and he has used crutches for some years; he goes to a private school where he has a special chair. Has had intestinal and renal bleeding; there was an attack of hæmaturia for ten days previous to admission. He has been carefully shielded from injury but small cuts have bled profusely and on one occasion a blood transfusion was necessary. Milk teeth have been carefully preserved to prevent danger of hæmorrhage.

The lower limbs are much wasted and there is limitation of movement in left knee. Considerable hæmaturia.

His clotting-time on May 24th was 26 mins. At 3 P.M. he was given an injection of 10 mg. intravenously and at 5 P.M. the clotting-time was 12 mins. Intravenous or intramuscular injections were repeated at suitable intervals and he has been gradually trained, first to walk without crutches, and then to jump off chairs, then to kick a football and to run over uneven ground in the garden of the nursing-home. The muscles of his legs were weak from disuse, but being a boy of adventurous spirit he was quickly trained to these exercises. One of us (A. E. N.) saw him slip badly over a grating in the path and twist his leg, without any hæmarthrosis occurring.

Six carefully filled temporary teeth were preventing the satisfactory eruption of the permanent dentition. His parents wished to have these removed if possible. Preparatory to extraction an intramuscular injection of 10 mg. was given on June 2nd and repeated on the 3rd. On the 4th his clotting-time was five mins. and $\underline{4|}$ was removed. Further injections of 10 mg. were given on June 5th, 6th, 7th, and 8th. During these four days a clot kept forming in the socket, and by the time 12–24 hours had elapsed each clot was sufficiently big to incommode him for taking his meals and talking. It was then removed and another clot slowly formed. By June 8th all bleeding had ceased. The total loss was estimated at about 2 oz. The clotting-time was kept between 5 and 8 mins. during the period June 4th to 8th. No packing was used in the socket.

After his return home to Manchester he was given intramuscular injections by his medical attendant, Dr. Macgregor, at fortnightly intervals, and indulged in all forms of activity. About the middle of July it was reported that he had a slight swelling of the left knee. Owing to calls on the material produced and difficulties in manufacture it was not convenient to readmit him then and Dr. Macgregor was advised to give him an injection every week, which seemed to keep him from further trouble. On Sept. 13th he was readmitted (five days after his last injection by Dr. Macgregor). His clotting-time was taken on four successive days and was found to be rising rapidly.

Sept. 14th = 32 mins. | Sept. 16th = 70 mins.
„ 15th = 50 „ | „ 17th = 120 „

It was likely that he was now in a "bad" period due to a natural fluctuation and that stronger and more frequent injections would be necessary to render him immune. On Sept. 30th a bruise appeared on leg. A course of treatment was therefore carried out as shown below and on Oct. 13th, after a preliminary injection intravenously of 50 mg., $\underline{|4}$ was extracted. There was slight oozing for about 30 mins. and again later in the afternoon, but this ceased after a further injection of 30 mg. at 5 P.M. On Oct. 14th a small clot over the socket separated but later re-formed; 30 mg. was given intravenously and no further bleeding occurred.

Date.	Clotting-time (mins.).	Injections (mg. intravenously).	Date.	Clotting-time (mins.).	Injections (mg. intravenously).
Sept. 18	—	15	Oct. 12	—	20 M.A.
„ 20	30	—	„ 13	15	50 „ 30 „
„ 22	30	—	„ 14	—	30 „
„ 25	—	10	„ 19	40	40 „
„ 27	23	—	„ 20	5	30 „
Oct. 1	45	—	„ 21	—	50* „
„ 4	—	20	„ 23	—	30 „
„ 5	30	20 M.A.	„ 25	—	20 „
„ 6	28	25 „	„ 26	6	60 „
„ 7	—	20 „	„ 29	—	40 „
„ 8	28	20 „	„ 30	3	50 „
„ 9	28	20 „	„ 31	—	50 „
„ 11	18	—			

* Intramuscular injection.

On Oct. 19th the clotting-time was 40 mins., but after 40 mg. intravenously $\overline{3|}$ was extracted. This was followed by slight oozing, but a clot soon formed and there was no further bleeding. On the 29th $|\overline{4}$ was extracted after 40 mg. intravenously; no bleeding occurred but a large clot had formed next day suggesting oozing below clotted surface. This was removed, 50 mg. was given intravenously and a small clot rapidly re-formed, but on Oct. 31st this had grown to inconvenient size and was removed; another injection of 50 mg. was given and there has been no further bleeding.

CASE 5.—Aged 43. Grandfather known as hæmophilic; died from hæmorrhage after fall at age of 44. Youngest brother died 1930 from Hodgkin's disease. Swollen joints after slight falls. Severe hæmorrhage from wound in mouth at 6 years; ill for 6 weeks. Tooth extracted at 16 years; bled for 4 days. Tooth extraction at 23 years followed by blood transfusion. History of repeated joint swellings and pain, and prolonged hæmorrhage from minor cuts. Had heard from Case 4 of treatment and came to have four teeth extracted.

Sept. 22nd: Clotting-time 12 mins. Sept. 23rd: Clotting-time 11 mins.

Sept. 24th: Clotting-time 15 mins. at 11 A.M. Injection 50 mg. (5 c.cm.) intravenously at 11.30 A.M. At 4 P.M. clotting-time 4 mins.

Sept. 25th: Clotting-time 6 mins. at 11 A.M. Injection 50 mg. (5 c.cm.) at noon. At 2 P.M. $|\underline{4{\cdot}5}$ extracted under gas. At 10 P.M. 10 mg. given intravenously.

Sept. 26th: Total loss of blood since extraction about 2 oz.; 10 A.M., 50 mg. intravenously; 11 P.M., 20 mg. intravenously. No bleeding during day.

Sept. 27th: 10 A.M., clot size of tip of thumb over sockets removed; 50 mg. intravenously. Slight oozing occurred but stopped after further injection at midday.

Sept. 28th: Clotting-time 12 mins; no further bleeding occurred. Sept. 29th: Drove 30 miles by car.

Oct. 5th: 50 mg. intravenously 11 A.M. $|\underline{8}$ extracted under gas 3 P.M. No bleeding. Patient up and about and had normal meals.

Oct. 8th: 50 mg. intravenously 11 A.M. $\underline{4|}$ extracted under gas 2 P.M. No bleeding.

Oct. 9th: 50 mg. intravenously. No bleeding; sockets all dry. Patient had kept a wool plug in the sockets $\underline{4|}$ and $|\underline{8}$ but this was merely stained with blood; he had normal meals and was not in bed.

Oct. 10th: 50 mg. intravenously. Drove home to Manchester. Oct. 12th: "A little bleeding"; Dr. Macgregor gave 50 mg. intravenously which checked bleeding.

Oct. 14th: Caught a chill when fishing; temp. 101° F. Bleeding began from $\underline{4|}$. Drove home 50 miles. Oct. 15th: Dr. Macgregor gave 50 mg intravenously. Oct. 16th: Temp. normal; firm clot in socket.

This patient has volunteered the information that cuts when shaving have not been troublesome since treatment began; before treatment such cuts necessitated changing collar two or three times.

CASE 6.—Aged 29. Admitted S.R.H. on May 12th by the courtesy of Dr. Dorothy Hare of the Royal Free Hospital, London. Patient is the third of six children of whom the four elder are males. The eldest died at 2 years, cause unknown. The second was a known bleeder and died at 14 from a pin-prick in the mouth. His youngest brother, aged 20, is a bleeder but rather less severely than the patient, and he has managed to retain employment so far. One male nephew died at 10 days old of unknown cause.

Since the age of 2 has had painful swellings of various limb joints at intervals of a week to two months, arising spontaneously or after slight injuries. Using a 4 lb. hammer for 15 consecutive minutes causes a week's disability of the right elbow. Often bleeds from nose and gums and has been unable to brush his teeth; has to be extremely careful when shaving. About 8 months ago had gastric hæmorrhage and hæmaturia and during this attack had four blood transfusions in the Royal Free Hospital. Had recurrence of gastric hæmorrhage about 6 weeks ago.

Has marked wasting of muscles of all limbs and considerable limitation of movement in most joints. The first injection was given on May 16th, followed by others on the 22nd and 30th; since his return to London the treatment has been continued. During treatment he was urged to carry out exercises and gradually his immunity from joint swelling gave him confidence so that during his stay in hospital he was able to use the four-pound hammer for periods of 40 mins. without mishap. After his discharge on June 4th he did no work for 4 weeks, but has been cobbling since. He has used the hammer regularly for periods of half an hour at a time without harm to the right elbow, but on three occasions the left shoulder, which is liable to a severe jar if the hammer mis-strikes, has been disabled for a period of three days each time. This is the joint previously liable to mishaps when lying on it in bed. He has had several minor cuts while shaving which have not bled as they always used to do. He says he has greatly improved in general health and all joints except the left shoulder have been freer and less painful than before.

Date.	Clotting-time (mins.).	Injections (mg. intravenously).
May 13	34	—
„ 14	39	—
„ 15	36	—
„ 16	—	30
„ 17	12	—
„ 22	19	—
May 22	—	30
„ 23	6	—
„ 30	20	—
„ 30	—	30
June 1	15	—

CASE 7.—Aged 39. Admitted to S.R.H. on July 2nd by courtesy of Dr. R. G. Macfarlane of St. Bart.'s Hospital. Youngest of family of seven. Out of three brothers, two have been bleeders. At 2 years bled for three to four weeks from cut lip. From 7 to 14 years went through a bad period of joint trouble and as an average attended school only two weeks out of every seven; ankles, knees, elbows, and shoulders mainly affected. From 12 years periodic hæmorrhage from kidneys began which has lasted till now. This has usually recurred about once every two years and lasted about two months. When 24 years old he bled from kidney continuously for nine months. At 17 had severe affection of right knee and was laid up for three months; this joint then became permanently fixed in a semi-flexed position. At 36 extremely severe internal bleeding; vomited two pints of blood; nearly died; blood transfusion. At 37 occasional fits (about 12 in all). (A hæmophilic brother started fits at 25 years old.)

Rather melancholic; general nutrition fair; muscles of limbs considerably wasted. Limitation of movement gross in right knee, moderate in both elbows and slight in wrists and ankles; other joints show crepitations. In the right knee the patella is dislocated outside the external condyle and there is gross distortion of bone position. He is able to walk with the aid of crutch or stick.

Many teeth were decayed and had been giving trouble and it was decided to remove 5 of them after a series of prophylactic injections. The first injection into the right triceps produced a large deep hæmatoma, the swelling extending almost from shoulder to wrist and under the annular ligament to the dorsum of the hand. A similar injection next day into the left triceps caused a hæmatoma of about 1 in. diameter, while two further injections on succeeding days were followed, the one by a bruise about 1 cm. in diameter, the other by no obvious swelling or discolouration. On July 16th an injection of 20 mg. was given and 5 teeth extracted. During the rest of that day bleeding was inconsiderable but during the night and the following day the hæmorrhage increased, and could not be checked by intravenous injections. The material used for these was from a fresh stock whose activity had not been tested on cats and it was found subsequently to be inert. (Demand for the substance at this time was so great that facilities for production were taxed to their utmost, although batches in various stages of preparation were always available.) Bleeding was temporarily decreased by 10 mg. of a previous batch and a fresh stock prepared hurriedly. This latter, however, through haste in preparation contained some potassium nitrate which caused sufficient pain on injection intramuscularly for the patient to refuse further injections. On July 20th his hæmoglobin had fallen from 94 per cent. to 62 per cent. and his pulse-rate had risen to 120. It was therefore considered advisable to apply viper venom locally. Despite this local treatment there was further loss of blood, but a purified batch of material being now available the hæmorrhage was stopped by intravenous injections given each day. After each intravenous injection the bleeding stopped for several hours. On July 23rd all bleeding ceased except for a recurrence of oozing from one socket. A blood transfusion of 500 c.cm. was given for the treatment of the anæmia and subsequent recovery was uneventful.

Case 8.—Aged 12. (Access by courtesy of Mr. T. B. Mouat.) Admitted R.I.S. on Jan. 24th. First cousin (Case 12) is a bleeder. No other bleeder known in the family. Recognised as a bleeder from infancy. First serious bleeding at 10 months old. Has been on five separate occasions in R.I.S. and on one occasion in the S.R.H. for severe bleeding, blood transfusions being found necessary three times. Epistaxis has been very frequent since 1 year old and gum bleeding not uncommon. Various joints have been swollen and on one occasion there was intestinal hæmorrhage.

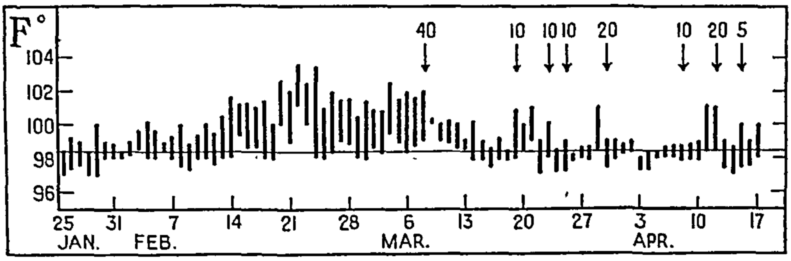

Chart showing daily temperature range in Case 8. Figures at top indicate dosage in mg.

He was admitted to the R.I.S. on Jan. 24th for a fracture in the middle of the right thigh which had followed a fall while playing. There was a large hæmatoma high up on the inner aspect of the thigh which was apparently an extension from hæmorrhage near the site of the fracture. An extension apparatus was applied. His condition began to deteriorate and it gradually became evident that the hæmatoma had become infected. He had one blood transfusion on Feb. 18th. On March 4th the hæmatoma was incised and began to discharge a mixture of blood and pus from a sinus. A pure growth of hæmolytic streptococci was obtained from the discharge. The extension apparatus had to be discontinued. With the progress of the infection the temperature gradually became higher and more continuous. For the first nine days after admission there were only three brief rises with a maximum of 100° F. From Feb. 3rd to 14th it was more continuously raised but still not above 100·2°. After this for the next twenty-four days from Feb. 14th to March 8th it had a much higher range, reaching a point between 101° and 103·8° on every day except two. (See Figure.)

Date.	Clotting-time (mins.).	Injections (mg. intravenously).
Mar. 8	Not completely clotted in 90 mins.	—
„ 8 (7.30 P.M.)	—	40
Mar. 9	1⅔	—
„ 19	12	—
„ 19	—	10
„ 21	4⅔	—
„ 23	7	10
„ 25	12	—
Mar. 25	—	10
„ 30	9	—
„ 30	—	20
Apr. 8	9	10
„ 12	—	20
„ 15	—	5
Sept. 7	35	30
„ 8	6	—
Oct. 4	30	10
„ 5	20	—
„ 17	33	20 M.A.
„ 19	8	—

On March 8th at 7.30 P.M. an injection of 40 mg. of the substance was given intravenously. The temperature immediately fell to a lower level (maximum 100·2°) and continued slowly falling till March 19th when it had been normal for three days. Bleeding from the hæmatoma sinus had ceased on March 10th and there was a gradual improvement in his general condition. An injection of 10 mg. was followed by cessation of bleeding, but not by a satisfactory fall of temperature, so another 10 mg. was given on March 23rd and again on the 25th. The temperature remained normal for six days up to the 29th. Another injection on the 30th was followed by twelve days of normal temperature and subsequently there were only two slight rises. The extension apparatus was replaced on April 8th and the progress of the patient has been steadily towards complete recovery. On July 26th the patient extracted a milk tooth and the subsequent bleeding stained two handkerchiefs. He has had injections from time to time since his discharge from hospital and now appears in good health.

Case 9.—Aged 21. Treated as an out-patient. Has history of joint swellings beginning at the age of 5 years; hæmatomata follow slight injury. The disease has shown a rhythm with 4–6 weeks' intervals between periods of disability lasting 10–14 days. At 8 years four loose milk teeth extracted; bled for 3 weeks and nearly died. Up to 15 years attacks used to prevent walking for a large part of the year, but since then has only lost about a quarter of his working time.

A small, thin man with pale, sallow complexion. Shows great caution in his movements and is afraid of being handled.

As this patient was not at the time complaining of any serious symptoms and was actually working at his usual employment he was utilised mainly to test the effect of injections on his clotting-time. The first venepuncture with tourniquet was followed by a hæmatoma measuring about 8 in. by 5 in. with its centre at about the point of puncture. After the first injection further manipulations of the same nature were no longer followed by hæmatomata. While under the influence of the injection with a low clotting-time he was encouraged to subject himself to the sort of knocks or jolts which experience had taught him would bring on bruises or joint swellings. He was not a very good subject in this respect as he was naturally timid and we cannot state from observation that there was any obvious improvement on his former condition. On one occasion during the course of treatment the left elbow became slightly stiff five days after the last injection had been given. From April 3rd to May 5th he was deliberately kept without an injection and at the end of that period when the clotting-time was rising steeply two hæmatomata appeared and the gums began to bleed. He has volunteered the statement that his capacity for walking has been 50 per cent. better since the injections have been started.

Date.	Clotting-time (mins.).	Injections (mg. intravenously).
Mar. 24	110	30
„ 25	7	—
Apr. 3	12	—
„ 3	—	10
„ 4	5	—
„ 12	12	—
Apr. 16	14	—
„ 20	18	—
„ 27	23	—
May 5	75	—
„ 5	—	60

Case 10.—Aged 16. Admitted to S.R.H. on July 7th by courtesy of Dr. A. G. Ogilvie, Newcastle-on-Tyne Royal Infirmary. Two maternal uncles hæmophilic; two brothers and two sisters normal. At 2 years bled from cut lip for two days; since then frequent swellings of ankle- and knee-joints. Occasional epistaxis. His school attendance has been about two-thirds of the maximum.

Date.	Clotting-time (mins.).	Injections (mg. intramusc.).
July 7	30	—
„ 12	—	5
„ 15	10	—
„ 20	—	5
July 25	30	—
„ 27	—	20
„ 30	8	—
„ 31	—	20

Pale undersized boy; looks some three years below his age. The only joints noticeably affected are the knees. The muscles of the right lower limb are markedly wasted and those of the left slightly. Hæmoglobin 70 per cent., with 5,000,000 red blood-cells and 5500 white blood-cells; anisocytosis and poikilocytosis present.

This boy was admitted during a period when he was comparatively well and no striking change in condition was noted.

CASE 11.—Aged 13. Admitted to S.R.H. on July 7th by the courtesy of Dr. Ogilvie of Newcastle-on-Tyne. Youngest of five of whom three were males. Eldest brother bled to death after dental extraction; the other brother normal. One male cousin died of bleeding. At 2 years had two blood transfusions for bleeding from mouth. Somewhat later a cut of right hand caused bleeding for some weeks. No external bleeding lately except oozing from the gums, which has been more or less continuous for years. Regular recurrent swelling of joints. Usually two months' interval between each attack. Last attack in right knee, two weeks ago. A week or two's disability with each attack.

Thin delicate-looking boy with small chest. Bleeding from gums. Numerous bruises of arms and legs. Both knees swollen, especially the left; limitation of flexion in both and some limitation of extension in the left. Considerable limitation of movement in the right elbow and left ankle.

The first injection into the right triceps caused considerable deep hæmatoma. He remained well while in S.R.H.

Date.	Clotting-time (mins.).	Injections (mg. intra-musc.).	Date.	Clotting-time (mins.).	Injections (mg. intra-musc.).
July 7	34	—	July 21	14	—
„ 9	37	—	„ 25	35	—
„ 15	—	15	„ 27	—	30
„ 16	9	—	„ 30	15	—

After his return to Newcastle he was given two injections weekly by Dr. Ogilvie. Three days after the second injection he had a severe deep hæmorrhage. This is the only case in which this has occurred. We are inclined to attribute it to the "non-keeping" quality of the substance prepared by the first method given. It may of course have been due to a severe fluctuation in the disease. The parents did not wish further treatment.

CASE 12.—Aged 9 years. First cousin of Case 8. At 8 months bled severely after injury to ear. During early childhood often had severe headache. At 7 years after a dental extraction was found next morning in a bed "saturated with blood"; admitted to S.R.H. and kept in for six weeks; blood transfusion; nearly died. At 8 years ear bled for 14 days; tongue bled after a cut for 10 days; hæmorrhage into testicles. Epistaxis lasting a week.

Date.	Clotting-time (mins.).	Injections (mg. intra-venously).	Date.	Clotting-time (mins.).	Injections (mg. intra-venously).
Apr. 5	90	—	Apr. 14	8	—
„ 5	—	15*	„ 20	14	—
„ 6	6	—	„ 29	18	—
„ 8	8	—	„ 29 (later)	—	20

* Followed by vomiting and shivering.

He was first under observation on April 5th. He was given two injections and his case is quoted only to show the effect of the first on his clotting-time.

CASE 13.—Aged 20. Admitted to S.R.H. on July 2nd by courtesy of Dr. Macfarlane of St. Bart.'s. Elder brother died of a cut at 18 months old; another brother died 6 days after birth (cause unknown). History of frequent hæmatomata since the age of 5 months. At 7 years had hæmorrhage into tissues of neck after extraction of milk tooth, and was in Chelsea Children's Hospital for 3 weeks; given horse serum once a month afterwards. From 7 to 14 years lost about a quarter of his school attendance time. After age of 15 had frequent joint attacks, and was in St. Bart.'s Hospital for 8 weeks on one occasion with hæmorrhages into left knee, right groin, and neck; treated with serum and transfusion. Has subsequently had transfusion on three occasions. He thinks the disease tends to go in fortnightly cycles, and when the bleeding tendency is present he has a craving for sugar and salt, and feels lethargic and tired.

Date.	Clotting-time (mins.).	Injections (mg. intra-musc.)	Date.	Clotting-time (mins.).	Injections (mg. intra-musc.).
July 3	33	—	July 10	15	—
„ 3	—	10	„ 17	35	—
„ 4	—	10	„ 17	—	20
„ 5	14	—	„ 18	10	—
„ 9	23	—	„ 26	—	10
„ 9	—	10			

Fairly good condition; muscles well developed. Able to walk some miles. Left elbow is most affected joint. Extension is limited by 30°. Right knee flexion is limited by about 20°.

This man was at the time of arrival in such good health that we did not observe any objective improvement; but the patient himself thought there was improvement after the injections.

Summary

A description is given of the preparation from egg-white of a substance or substances which, on intravenous or intramuscular injection, reduces the clotting-time of the blood and controls hæmorrhage in hæmophilics.

This substance, even when injected in large quantities, has never been found to produce either local or general intravascular clotting; nor does it appear to cause any other disability.

Repeated injections are necessary to control the tendency to hæmorrhage in hæmophilia.

A derivative of mucic acid has been found to have similar properties.

We wish to express our deep sense of gratitude to Alderman J. G. Graves of Sheffield, whose generosity has made it possible to continue this work. The animals used for test purposes were paid for by a grant from the Medical Research Council to one of us (G. A. C.). We wish also to thank Messrs. J. Naish, B.A., and J. Squire, B.A., for their valuable assistance in the preparation of material.

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FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—An afternoon course in venereal diseases will be given at the London Lock Hospital from Nov. 23rd to Dec. 19th; a course in proctology at St. Mark's Hospital from Nov. 30th to Dec. 4th; a course in thoracic surgery at the Brompton Hospital from Dec. 7th to 12th; and an afternoon course in dermatology at the Blackfriars Skin Hospital from Dec. 7th to 19th. Week-end courses will be held as follows: general surgery at the Princess Beatrice Hospital (Nov. 14th and 15th); infants' diseases at the Infants Hospital (Nov. 21st and 22nd); chest diseases at the Brompton Hospital (Nov. 28th and 29th). A clinical and pathological course for M.R.C.P. candidates will take place at the National Temperance Hospital on Tuesdays and Thursdays, at 8 P.M., from Nov. 24th to Dec. 10th.

ANAL FISSURE

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Though anal fissure is a simple condition, which can be successfully dealt with by a variety of methods, a glance through articles on the subject does not show that unanimity in regard to its cause, its chronicity, and the rationale of its cure that one might expect.

The explanation of its cause most often encountered is the time-honoured one originated by Ball—namely, *a tearing down of one of the anal valves by a scybalous mass*, the torn valve forming the well-known sentinel pile. Very often, however, no such pile is present. This theory has been modified by the suggestion that a small submucous fistula follows a slight tear in the region of an anal valve, and that the resulting infection burrows downwards in the subcutaneous tissue of the pecten, thus forming a small blind internal fistula, the overlying skin of which later gives way. A more recent view is that fissure is associated, at least in the great majority of cases, with a "pecten band," which is torn by an unusually hard scybalous mass and some writers state that in the operative treatment of fissure this band should be looked for and divided.

The chronicity is usually ascribed to spasm of the anal muscles, though in old-standing cases the excessive production of fibrous tissue due to infection and to repeated tearing alternating with attempts at healing is said to play a part. The lack of drainage mentioned by some writers suggests that infection is a contributory factor.

Before these matters are discussed, it will be necessary to consider some points in the anatomy of the anal canal.

ANATOMY

A careful study of the musculature of the anal canal has been reported by Milligan and Morgan,[1] and I have confirmed the points relevant to this discussion.

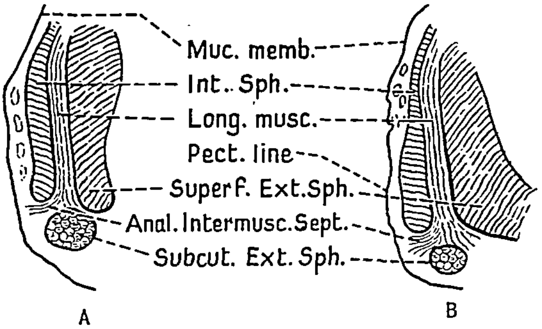

FIG. 1.—A. Lateral section of the anal canal. B. Section through the region of the posterior commissure.

The canal is about 1½ in. long. The upper two-thirds, which is lined by mucous membrane, need not concern us here; it is surrounded by resilient muscle, and is easily dilatable. The lower third, or ½ in., of the canal is lined by skin, which is thinner than that found in most other parts of the body. The junction of the skin and mucous membrane is marked by the anal valves, which, from their resemblance to the teeth of a comb, give it the name of pectinate line. The skin below this, for a distance varying from 3 to 9 mm.,[2] is smooth, and has been given the name of the "pecten." Immediately below the pecten the skin is firmly attached to a tendinous ring, called by Milligan and Morgan the "anal intermuscular septum." This ring separates the internal sphincter muscle above from the subcutaneous portion of the external sphincter below, and into it is inserted the fibrous prolongation of the longitudinal muscle of the anal canal, from which, in fact, it is derived (Figs. 1 A and B). Below the ring the skin again becomes loose and thrown into longitudinal folds, overlying the subcutaneous external sphincter.

Outside the ring lie the fibres of the superficial external sphincter, and these, unlike the fibres of the deep and subcutaneous portions of the external sphincter, have an elliptical disposition. They arise in front from the central point of the perineum and pass backwards to be inserted into the coccyx and to the anococcygeal raphe passing forward from it. In front they form a wide angle while behind, except for a few fibres which encircle the bowel, they come together at an acute angle (Fig. 2). This superficial sphincter is the only muscle lying outside the septal ring, and the support it gives to the ring under conditions of overstretching will be least efficient in front and behind, and this lack of support will be greatest *posteriorly (Fig. 1 B).*

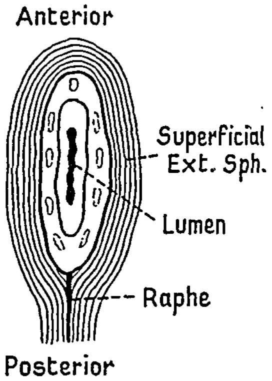

FIG. 2.—Transverse section at level of anal intermuscular septum.

PATHOGENESIS

The part of the anal canal surrounded by the anal intermuscular septum, consisting as it does mainly of fibrous tissue, is characterised by rigidity, and, as mentioned above, is relatively poorly supported by muscle behind, and to a less extent in front. It is a matter of ordinary clinical experience that normal anal canals vary in diameter in different people; if a canal is on the narrow side and has to deal with the passage of unduly large and hard scybalæ, the part most likely to suffer damage is the most rigid part, and this part is most likely to sustain injury where it has least support. It is suggested that traumata of this nature occur and lead to small extravasations of blood and the formation of fibrous tissue with subsequent contraction. It is at least possible that in the earlier stages the damage is subcutaneous, but sooner or later a ridge of fibrous tissue forms, usually behind, or much more rarely in front, and rupture of this ridge by a hard fæcal mass is likely to result. In this way a fissure is formed. The great majority of fissures are well known to lie posteriorly. Of 67 cases, 63 were posterior, 3 anterior, and 1 was on the left side. When these changes are pronounced and occur in front as well as behind, the whole septal ring is contracted and forms a definite stricture. In such a condition there may be no fissure when the patient keeps the stools in a semifluid state by the continual taking of aperients.

Miles[3] had a different explanation for non-traumatic strictures of the anal canal. He stated that the fibrous tissue was laid down under the pecten, and that it was the result of chronic venous congestion due to long-standing hæmorrhoids or possibly to chronic constipation of the rectal type. This explanation, however, is not altogether satisfactory. Cases of hæmorrhoids of 20 or 30 years history are frequently seen without any pecten band being present; and, as admitted by Abel,[4] "the pecten band may exist to a marked degree without any other pathological condition being found in the rectum or anal canal." In a figure in Abel's article a "pecten band" is illustrated, but it is shown to lie, not on the pecten area, but immediately below the internal sphincter in the line of the anal intermuscular septum. The same author also ascribes its presence in some cases to long-continued spasm, but does not indicate the cause of the spasm.

Only in very advanced cases is there a definite ring of fibrous tissue; in the great majority contracture occurs only in the posterior commissure. This is what is usually found in cases of fissure, and it is interesting to note that both Miles and Abel recommend division of the pecten band in the right *posterior* segment. On the other hand, where a complete ring of fibrous tissue is encountered—as a result, for example, of previous operation in this region—several sections of this ring may be necessary at different points in its circumference to obtain satisfactory dilatation of the canal.

CLINICAL FEATURES

If the above theory of the causation of anal fissure is accepted, the various features of the condition can be readily explained. When a fissure is small it is seen to lie just above the subcutaneous sphincter, and though its upper part may encroach on the pecten, its centre is opposite the septal ring. The floor consists of fibrous tissue formed in attempts at repair, and laid down in a transverse direction in response to stress; like fibrous tissue elsewhere, it is poorly supplied with blood-vessels, and has no granulations. At the upper and lower limits of the fissure the vascularity of the tissues is less interfered with, and from these areas more active attempts at repair take place. Skin grows from these situations over the fissure, but is detached from its floor by the opening up of the lesion during defæcation, though still remaining attached at the ends. The loosened flaps become completely epithelialised by the growth of skin round their deep surfaces, and this results in the little tags which are often seen at the upper and lower ends of the lesion. Sometimes a tiny blind internal fistula is found to extend into the lower tag. This has been regarded as the remains of a fistula which was the original cause of the fissure, but can more reasonably be ascribed to the healing process being partially successful, the edges of the lower tag having retained an anchorage at the edges of the fissure at its lower end.

The sentinel pile is exactly like any other external pile to be found at any part of the anal outlet, whether a fissure is present or not. I have seen one fissure where there lay exposed in its lower part a recently thrombosed vein. Fibrosis in the tissues immediately surrounding the fissure will involve the neighbouring veins, and extra strain will be liable to tear a vein and cause thrombosis; this clotting is likely to spread downwards to a variable extent, causing an ordinary thrombosed external pile or hæmatoma ani, the end-result being a tag of skin.

CHRONICITY

The well-known tendency to persistence of anal fissure can be ascribed to two factors. First, there is the narrowing of the anal canal at the septal ring, which is only wide enough for its physiological purpose when the fissure is fully opened out. Any healing-in of the fissure is immediately followed by strain on the ring. Secondly, the poorness of the blood-supply prevents the formation of good granulation tissue, and if this is formed at all, it is liable to be rubbed off by the stools. Hilton,[5] discussing the treatment of fissure, has stated that "the motion should be kept soft and pulpy, so that the sphincter may not be too widely opened during defæcation, nor the ulcer exposed to the friction of a large or hard motion."

Spasm of the sphincters no doubt plays some part, inasmuch as the friction between the motion and the raw surface of the fissure is increased, but certainly is not a decisive factor. It can be completely got rid of by the repeated injection of anæsthetic solutions for periods of weeks or months, and yet healing may not take place. All fissures do not have that exquisite tenderness and resultant spasm usually referred to in text-books, and occasionally a fissure having the typical appearance of a chronic lesion is met with where pain and tenderness are negligible, and spasm is completely absent. In such cases attempts at healing have ceased, and the fibrous tissue has developed to such an extent in the base of the fissure as to withstand any overstretching of the canal. A balance has been struck.

TREATMENT

Healing of a fissure can be obtained by:—

(1) Avoiding overstretching of the canal either by widening the canal at the septal ring so that there is ample room for the motions to pass; or by regulating the stools so that they are soft and do not stretch the canal unduly.

(2) Stimulating healing by the application of irritant substances to the surface of the fissure, or injecting them below its surface, thus increasing the blood-supply.

A combination of methods may of course be employed.

Conservative measures.—The simplest treatment is to keep the motions very soft with liquid paraffin or mild aperients. This is automatically adopted by the patient when symptoms of a fissure appear, and no doubt many fissures heal in this way without coming under the care of a medical man. Fissures which are not very indurated are sometimes seen to heal during the injection treatment of hæmorrhoids, during which time the state of the motions claims a good deal of the patient's attention. In older books much is said about the use and composition of enemata, the net result being the avoidance of anal distension. The application of caustics used also to be discussed a good deal, the object of which was to destroy sensitive nerve-endings and to coagulate the floor of the ulcer. Their chief action was, no doubt, to increase the blood-supply by their irritant action and so promote vigorous granulation tissue, which would be less likely to be swept away by the stools. These measures, however, have always been regarded as only partially successful, and are not stressed in modern teaching.

Operative treatment.—The operative measures advised for the treatment of fissure all involve, by design or accident, solution of continuity of the ring of tissue forming the anal intermuscular septum. "Stretching the sphincter," which means stretching the anal canal, obviously does this. So do excision of the fissure and division of its floor. Division of "the sphincter" is recommended by some authors, though what is meant by "the sphincter" is usually left rather vague. If all three parts of the external sphincter were divided, no doubt the fissure would heal, but incontinence would follow. Illustrations usually suggest that what is divided is the subcutaneous portion of the external sphincter and the fissure itself, and so the septal ring. On the other hand, some writers state that division of the sphincter is unnecessary, and should never be done, only the fissure itself being subjected to the knife. Any of these methods will result in the healing of a fissure, and all involve section of the fibrous tissue in the neighbourhood of the lesion, and restoration of the dilatability of the lower part of the anal canal by division of the intermuscular septal ring.

Injection treatment.—The injection of oily solutions of anæsthetics, containing a percentage of alcohol, was introduced in America by Yeomans in 1927, and later Gabriel[6] in this country reported results following the use of a similar solution known as "A.B.A." Gabriel found the method good for recent fissures, and in more chronic ones obtained healing in a "considerable proportion" of cases. More recently, Morgan,[7] using a modified solution of his own, claimed good results in recent fissures only.

In my series of 45 cases that were treated with A.B.A., 18 healed after one injection and 4 after two treatments; in 14 cases the notes are incomplete, but most of these completed a course of injections for hæmorrhoids and were discharged, so that it can be presumed that in most, if not all, the fissure healed. Thus it is probably safe to say that healing occurred in 60 per cent. or more of cases. The important point, however, is that many cases do not heal in spite of repeated injections. One such may be quoted.

A male, aged 36, reported with a posterior fissure on May 19th, 1932, when 4 c.cm. of A.B.A. were injected. He was seen at intervals, and on three other occasions the fissure was injected, the last injection being given in September. During most of this time the lesion was painless but it refused to heal and was later excised.

Anæsthetic solutions were introduced owing to the belief that spasm was the factor interfering with healing, but this view can hardly be accepted, for, if it were true, injection treatment would result in the healing of all cases. The oil and alcohol both act as irritants when injected into the tissues, and set up a reactionary fibrosis under the fissure which prevents its being overstretched at each act of defæcation. A hyperæmia is also brought about, and this favours the repair of the lesion by the encouragement of the growth of granulations which are so characteristic of a fissure which is in process of healing as opposed to one which is not. The fibrosis resulting from injections produces a certain degree of narrowing of the anal canal. This is liable to be inconvenient and may give rise to symptoms. In some cases the tissues at the site of the healed fissure remain rather weak and liable to break down again under strain, and pain on defæcation may persist, though the fissure has healed.

One patient, for example, received 3½ c.cm. of A.B.A. and the fissure healed. Four months later she still had pain after the bowels moved, and examination showed the fissure still healed but the anal canal was narrowed. She was admitted for operation, and when the anus was manually dilated, a split appeared at the site of the fissure.

That the healing is unsatisfactory in a percentage of cases is also shown by the fact that some tenderness may persist, although the fissure has become epithelialised. The conclusion arrived at is that though the injection treatment of fissure may be useful in selected cases, it is not an ideal method of treatment.

Details of technique.—The essential result to be aimed at in treatment is a widening of the anal canal at the level of the fissure, and this is most easily attained by division through its base of all fibrous tissue at that point. This involves section of the anal intermuscular septal ring. The procedure is simple and can be carried out single-handed in the consulting-room or out-patient department. The fissure is presumed to be in the usual posterior position.

The patient lies on his left side with the knees drawn up and a local anæsthetic is injected through a puncture 1 in. behind the anus into the tissues beneath the fissure, care being taken that complete analgesia is obtained. The anoscope shown in Fig. 3 is then gently introduced with the handle pointing backwards. This instrument * is a modification of Lockhart-Mummery's, the window being wider and the handle reversed. The lesion is put on the stretch in the window of the anoscope, and with the handle held in the left hand, the right is free to divide the fissure. The division is carried out with a tenotome or narrow-bladed scalpel till no strands of fibrous tissue can be felt with the finger, and when it is completed the increase in diameter of the anus is striking. Bleeding from the wound can be controlled by touching the surface with the silver nitrate stick, and a little vaselined wool is applied before the anoscope is withdrawn. Where a sentinel pile is present, it is better snipped off before the fissure is treated, as it is apt to obscure the view.

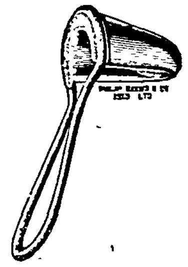

FIG. 3.
The anoscope.

The post-operative reaction varies a good deal. The unimaginative type of patient carries on with his work the following day, while the highly strung individual may require the better part of a week before he can take up his duties. After the analgesia has worn off pain is apt to be troublesome for 12 to 48 hours and morphia may be required the first night. Percainal applied at frequent intervals is of benefit. The pain can be largely prevented by injecting a few c.cm. of anæsthetic oil round the wound, but I am not convinced that the increased fibrosis caused thereby is altogether desirable. When the pain has subsided some discomfort is felt on defæcation for a few days, but after that, though the wound may take several weeks to heal completely, the anal canal ceases to intrude on the patient's consciousness. During healing the daily application of carbolic acid ointment or some similar preparation is all that is required, and the injection treatment of concomitant hæmorrhoids can be undertaken without anything more than slight discomfort.

The healing process takes place more by the ingrowth of skin from the edges than by adhesion of the sides by granulation fibrosis, and permanent widening of the canal is an end-result. Patients will often say that defæcation which, apart from the pain of the fissure, has been a cause of trouble and discomfort for many years becomes an easily accomplished act.

Even if the fissure is one of the uncommon variety that is relatively painless it is probably wise to treat it, as any chronic ulcerative process is liable to undergo neoplastic change, and the common site of fissure-in-ano is significant in view of the statement of Ward and Smith,[8] that carcinoma of the anal canal "commonly arises . . . somewhere in the posterior half of the anal margin."

I wish to express my indebtedness to Dr. W. Whitelaw for putting at my disposal his post-mortem material at Dudley-road Hospital.

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* This instrument was made for me by Messrs. Philip Harris and Co., Birmingham.

CLINICAL AND LABORATORY NOTES

PERMANENT STANDARDS FOR THE TURBIDOMETRIC ESTIMATION OF PROTEIN

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The determination of the amount of albumin in urine, C.S.F., and other body fluids is a matter of clinical, as well as laboratory interest. Of the several quantitative methods which have been proposed (Esbach,[1] Exton,[2] Van Slyke,[3] and others, the turbidometric procedure of Kingsbury and Clark[4] is probably the most convenient. This method can be applied to C.S.F. and other body fluids as well as to urine, and has been in use, with modifications in the apparatus required, in the laboratories of the British Postgraduate Medical School for some time. The procedure is very simple, and can be used with equal success by laboratory workers and general practitioners.

The principle of the method consists in comparing the turbidity in a set of permanent standards with that produced when a standard amount of sulphosalicylic acid is added to a measured amount of the albuminous fluid. The standards consist of a permanent suspension of formazin in gelatin. They have been standardised in this laboratory by reference to the turbidity produced with sulphosalicylic acid in a solution of crystalline horse-serum albumin, a diluted human serum whose protein content was established by Kjeldahl, and a solution of crystalline albumin isolated from the urine of an orthostatic albuminuric.

The Method.—Add 3 c.cm. of 3 per cent. sulphosalicylic acid to 1 c.cm. of urine, C.S.F., or other albuminous body fluid, in a small test tube, and compare the turbidity after 5 minutes with that in the standards. If the degree of turbidity is too great for comparison make a suitable dilution of the fluid with water, and repeat the test.

Preparation of the Standards.—The gelatin is clarified as follows: 65 grammes of pure gelatin are dissolved at about 90° C. in 500 c.cm. of water. The "white" of one egg, in approximately twice its volume of water, is vigorously stirred into the solution. The mixture is heated, with continual stirring, on a boiling water-bath for 1 hour. It is then filtered through a large coarse paper in a heated funnel. The clear slightly yellow filtrate is kept liquid at about 50° C. for the preparation of the standards described below.

The formazin is prepared as follows: 25 c.cm. of an aqueous solution (10 g. per 100 c.cm.) of hexamine (hexamethylene tetramine) are added to 25 c.cm. of a solution (1 g. per 100 c.cm. in water) of hydrazine sulphate. The mixture is stoppered, shaken, and left at room temperature for at least 15 hours. The resulting precipitate of formazin is carefully mixed by gentle shaking until it is evenly dispersed throughout the liquid.

14·5 c.cm. of the suspension are added to 100 c.cm. of gelatin together with 0·3 c.cm. of 40 per cent. formaldehyde to ensure permanent "setting." Such a gelatin suspension of formazin has been found to be equivalent to a concentration of serum albumin (precipitated with sulphosalicylic acid under the conditions described above) of 100 mg. per 100 c.cm. The gelatin suspension is now diluted with clarified gelatin (containing 0·3 c.cm. of 40 per cent. formaldehyde per 100 c.cm.) to give standards corresponding to other albumin concentrations. The following mixtures of gelatin and formazin-gelatin suspension are made in small tubes of uniform bore (7·5 by 1 cm.).

Tube.	C.cm. of gelatin.	C.cm. of gelatin-formazin.	Value in terms of albumin per 100 c.cm.
1	3·6	0·4	10
2	3·2	0·8	20
3	2·8	1·2	30
4	2·4	1·6	40
5	2·0	2·0	50
6	1·6	2·4	60
7	1·2	2·8	70
8	0·8	3·2	80
9	0·4	3·6	90
10	0	4·0	100

When cold, the tubes are stoppered with corks cut level with the top of the tube. The stoppered ends are then dipped in molten paraffin wax and allowed to cool. The standards may be checked against serum solutions standardised by nitrogen determinations. They should be mounted in a wooden rack painted black. Comparison is best made by viewing them against a strip of white cardboard with a transverse black line fastened to the rack.

Arrangements have now been made with Messrs. Gallenkamp and Co., London, to manufacture these standards. Sample sets have been checked against those prepared in this laboratory and against albumin solutions of known strength.

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FATAL POISONING BY SODIUM NITRITE

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As poisoning by sodium nitrite is rare, and as I have not been able to trace any record of fatal poisoning by it in this country, I have been prompted to contribute a few notes on three cases which recently came under my observation.

On the afternoon of Sunday, May 31st, 1936, I was called to see a family who had suddenly taken ill after the midday meal. The affected members were a man, aged 45, his wife, aged 43, and her daughter, aged 5. When I reached the house both the man and his wife were dead, and the child had been removed to hospital. I was told by neighbours who occupied adjacent rooms that the family had complained of abdominal pains immediately after the meal, that they had vomited, and their faces "went blue." External examination suggested that both adults had been dead about an hour (which would be within an hour after partaking of their meal). The lips were rather cyanosed; there were particles of cabbage and food about the mouth, but the buccal mucous membrane showed no signs of corrosion. The only vomited matter which was obtainable I was told was that of the child. When taken ill the mother had told her neighbour that another daughter, who was at Sunday school, was not to have her share of the meal which was being kept in the oven.

The child, I was informed, was moribund on arrival at hospital. She had a stomach lavage, and stimulants, but died about half an hour after admission.

I subsequently performed post-mortem examinations on all three victims. As might be expected from the sudden death the pathological changes were slight. The œsophagus in each case was normal in appearance. There was brownish discoloration at the anterior aspect of the pyloric end of the stomachs of the woman and child. On opening the stomachs the mucosa was found to be œdematous and injected, as was also the lining of the duodenum and upper ileum. The brain, kidneys, and other organs were rather congested.

The following observations were subsequently made. The dinner consisted of meat, potatoes, cabbage, Yorkshire pudding, rhubarb tart and custard. A salt cellar on the table contained an upper layer of a salt of a faint yellow colour and a lower layer of white salt similar in appearance to prepared table salt. A basin was found containing about 4 oz. of salt similar in appearance to that of the upper layer in the salt cellar. The contents of the basin and the upper layer in the salt cellar were found to be sodium nitrite of commercial purity containing 98 per cent. of the pure salt. The composition of the lower layer in the salt cellar corresponded to that of prepared table salt containing 98·2 per cent. of sodium chloride.

The following amounts of nitrites as sodium nitrite were found in organs, &c., examined.

	Sodium nitrite.
Man's stomach	4·275 grammes
Woman's stomach	1·284 "
Child's stomach (washed out before death)	0·005 "
Child's vomit	1·047 "

The unconsumed portions of the foodstuffs forming the meal contained the following percentages of nitrites as sodium nitrite.

	Sodium nitrite.
Yorkshire pudding	4·50 per cent.
Potatoes	0·75 "
Cabbage	6·50 "
Joint of meat (outer layer)	0·15 "
" (interior)	0·015 "
Rhubarb tart	Nil.
Custard	0·015 "

It was impossible to form a definite idea of the quantity of sodium nitrite taken by any of the three persons, since unfortunately neither the vomit of the man, nor of the woman, nor the contents of the child's stomach previous to washing out were obtainable for examination; but the quantity must have been appreciably in excess of the amounts subsequently recovered from the stomachs. No definite evidence could be obtained as to the origin of the sodium nitrite, but the man had access to the sodium nitrite plant of a factory at which he was employed.

My thanks are due to Mr. A. Scholes, of the Public Analysts' Laboratory, Middlesbrough, for the results of his chemical analysis of the various specimens submitted to him.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF LARYNGOLOGY

A MEETING of this section took place on Nov. 6th, Mr. LIONEL COLLEDGE, the president, occupying the chair.

Tuberculosis of the Larynx Simulating Cancer

Dr. A. HAUTANT (Paris) submitted a contribution on unusual forms of tuberculosis of the larynx, and the manner in which they could simulate laryngeal cancer. He showed slides of cases of laryngeal epithelioma which were at first diagnosed as tuberculous disease of that part, but the biopsy showed them to be cancer. One case showed a unilateral lesion of the subglottic area, with the cords almost fixed, and an extension on to the surface of the anterior arytenoid. There were vegetations along the edge of the cord. Another slide showed a median subglottic cancer, with an expanding ventricle descending below the thyroid border. One case showed a pre-arytenoid lesion, with cord fixation, and X rays revealed fibrosis of the lungs. The biopsy left no doubt that it was epithelioma.

On the other hand, he showed slides of a case of tuberculous tumour of verrucose form on the ventricle, closely simulating in appearance carcinoma of the larynx. He urged that, whatever the appearance in the larynx and the apparent certainty of diagnosis, a careful pulmonary examination should always be made. Provocative X ray therapy was dangerous, and should be ventured on only with caution.

Dr. N. RH. BLEGVAD (Copenhagen) opening a discussion on the problem of

Early Laryngeal Tuberculosis

said it was not his purpose to enter into the differential diagnosis of tubercle of the larynx from cancer, syphilis, and lupus. Thirty years ago tuberculosis of the larynx was most widespread among men, but, as Sir StClair Thomson had pointed out, men and women were now affected about equally, probably because the modes of life of the two sexes were now more closely [illegible]. It was particularly important to [illegible] of laryngeal tuberculosis as early as possible, as the sooner the treatment was begun the greater were the chances of cure. In many text-books it was stated that people suffering from phthisis were especially susceptible to laryngeal tuberculosis, but Dr. Blegvad knew of no evidence in support of this, and it was contrary to his own experience. Most of the phthisical patients he had seen had told him they had never even been hoarse, and certainly they had not had acute laryngitis. In cases of laryngeal tubercle the disease at once manifested itself as such. Sir StClair Thomson had included among the symptoms which should give rise to suspicion of laryngeal tuberculosis, catarrh or congestion, limited to one part of the larynx, lasting for some time; thickness and congestion of one arytenoid or one ary-epiglottic fold; paresis of the muscles of abduction. There were six other changes which should arouse suspicion: (1) An isolated redness of one of the vocal cords. This, however, might mean cancer in an early stage, or a remnant of catarrh; but if it was seen in a phthisical patient it was safe to regard it as tuberculous. If the redness disappeared when silence and simple treatment were enjoined one could not tell whether it had been tuberculous or not. (2) Prolapse of the ventricle of Morgagni was an almost certain sign of laryngeal tubercle. This prolapse might be the only evident affection of the larynx. It was accompanied by redness and swelling along the border of the vocal cords. This prolapse largely disappeared on phonation. Often tubercle bacilli were recoverable from the ventricle of Morgagni. Further suspicious signs were (3) a swelling and redness of the posterior ends of the vocal cords, (4) swelling of the lower ends of the vocal cords, and (5) infiltration of the inter-arytenoid region. The last suspicious sign to which he drew attention was one he had only noted in the past year—namely, (6) the appearance of a little red cushion below the commissure on the anterior wall of the trachea. In these early examinations of the patient it was important, but often difficult, to induce the patient to breathe quite calmly. For the examination of the inter-arytenoid region he strongly advocated the use of the posterior wall mirror of ter Kuile, a specimen of which he exhibited.

Dr. Blegvad's experience had been derived from two large Copenhagen institutions, one of them a sanatorium. Between 1916 and 1934, 1773 patients with typical laryngeal tuberculosis had been treated in the hospital; 404 of them could not be afterwards traced. Of the remaining 1369, 399 (or 29·1 per cent.) were clinically cured, 139 (10·2 per cent.) were improved, and 831 (60·7 per cent.) had remained clinically unchanged. In a large proportion of the patients who came in with hæmoptysis, fearing tuberculosis, the blood was found to be coming from the nose; in such cases there was usually no blood in the trachea. Why some people got the disease and others did not was, he thought, largely a question of personal immunity. He personally had been sitting in front of and examining tuberculous patients for twenty years, seeing quite 40 a day, but had never had a trace of tubercle. At his hospital it was a rule not to engage nurses who were Pirquet-negative. He believed in both a local and a general immunity. In only 17 of 921 patients with cured tuberculosis had the tubercle bacillus not been found—i.e., there were 98 per cent. of positives. The general treatment carried out in his institutions had been universal light baths. Of 179 patients so treated, 66 were cured. This treatment in many cases was supplemented by such measures as diathermy and local surgery.

Dr. L. S. T. BURRELL dealt with laryngeal tuberculosis in its relation to disease in the lungs, as he met with it in his work as a physician. Of the consumptives who because of hoarseness or laryngeal difficulty were sent to have a laryngeal examination, one-third were returned as not tuberculous. Those always did well, and following them up he did not find a greater incidence of tuberculous laryngitis in those who had this preliminary hoarseness than among others. When he first joined the staff at Brompton tuberculous laryngitis was looked upon with extreme gravity; it was still a grave disease, but a slight degree of laryngitis was not regarded as affecting prognosis. Recently he had been impressed by seeing patients with extensive laryngitis who made a complete recovery. A tuberculous larynx responded very well to artificial pneumothorax, and would also respond to other collapse methods, such as thoracoplasty. When it was possible to perform a complete collapse of the lung it was exceptional for tuberculous laryngitis to continue. If a larynx became definitely worse in spite of medical treatment of the chest, the outlook was practically hopeless; but if the laryngitis improved there was a very good chance that the patient would recover. It was his experience that nearly always blood which was coughed up came from the lungs, not from the throat. In his view smoking was most injurious to the patient with early laryngitis. In pulmonary cases, sputum was passing over the larynx in large quantities, yet many patients, even with advanced phthisis and others with tuberculous enteritis, escaped tuberculous laryngitis. He wondered whether some patients caused injury to the larynx by coughing and other strain and so made easy its infection.

Sir STCLAIR THOMSON questioned whether the title of the discussion meant the early appearance of tubercle in the larynx, or early manifestations of laryngeal tubercle in cases of phthisis. It was certainly a problem why it was generally impossible to find the tubercle bacillus in the larynx, and why some cases of tuberculous laryngitis had never had tubercle bacilli in their sputum or indeed any sputum at all. Another problem concerned the lupoid and the clinically typical tuberculous lesion. Two larynxes might present almost identical appearances; but while in one the result would be almost certain death, the other disease was of the lupoid variety, a form which was of slow progress and was usually curable. The lupoid form, however, would change into the definitely tuberculous one if it was neglected. Treatment entailed prompt sanatorium routine, voice rest, and, in certain cases, local application of the galvanocautery. Equally important was the general treatment of the patient, with all the modern methods of collapse therapy. Sir StClair said he had published a comparative study, showing the greater proportion of cures after artificial pneumothorax, and he was engaged in studying this with other methods which were now employed surgically to bring the lung to rest. He agreed with Dr. Burrell that abstinence from tobacco was most important. Even in the patients who might recover while they continued to smoke, recovery was assisted by quite 25 per cent. by giving up smoking. Early diagnosis was sometimes easy, sometimes difficult. Much depended on the trained eye of the laryngologist; with a long practice in this department tuberculosis had almost vanished from general clinics at hospitals, and was relatively rarely met with in consulting-rooms. A single inspection did not always suffice; examination should be made in a well-darkened room. The condition of the larynx changed from day to day, this change depending much on coughing, pyrexia, and even fatigue. Not only should the movements of the cord be noted, but as complete a view as possible should be obtained; it was almost impossible to see a completely invaded inter-arytenoid region.

Mr. F. C. ORMEROD assumed that the discussion was concerned with a not very advanced disease of the larynx; perhaps it might be restricted to the first group of Aschoff's classification—i.e., that of infiltration, with or without œdema. He had examined the notes of all the cases of that type seen at Brompton Hospital during 1934, in particular reference to the condition of the lungs. There were 65 such cases, and the tuberculous lesion was on the cords in 41 (one cord in 20, both cords in 21), on ventricular bands in 9, arytenoid processes in 2, inter-arytenoid space in 9, epiglottis in 1, and internal tensor paresis in 3. Fifty of these 65 cases showed tubercle bacilli in the sputum; in 4 tubercle bacilli were absent, and in 11 there was no record of them. It was clear, therefore, that slight involvement of the larynx did not mean only a slight amount of disease in the chest. The progress of the laryngeal disease did tend, however, to run parallel with that of the chest disease. In occasional cases, on the contrary, a larynx was seen to improve although the patient was going steadily downhill. Of the 65 cases referred to, 12 had phthisis in both lungs, 53 had phthisis in one lung; 4 had cavities in both lungs, 28 had cavities in one lung; 9 had infected tonsils, 6 had nasal obstruction. In cases of early involvement of the larynx it was usual to find fairly advanced lung disease. In these tuberculous cases sinus disease was comparatively uncommon. In patients who were going generally downhill one could not expect to bring about any improvement in the laryngeal condition; but in patients doing well, the larynx improved too. The treatment of early laryngeal disease seemed to rest largely with the physician, but the patient must be on silence and have applications of the galvanocautery. Aschoff's classification was as follows: (1) infiltration, with or without œdema; (2) ulceration; (3) perichondritis; (4) tumour formation (granulomatous and pachydermatous). Mr. Ormerod commented on the seriousness of inter-arytenoid infiltration. Of 9 cases in which this was present 4 died, 4 became worse, and the other was in statu quo.

Mr. J. D. McLAGGAN said that the first essential in the treatment of a tuberculous lesion in any part of the body was to put the part at rest. There would be no benefit until the cough had been controlled; therefore a start must be made by drying up the sputum, and controlling the cough, which was done by routine sanatorium treatment, reinforced by artificial pneumothorax, phrenic avulsion, and thoracoplasty. In most cases as the lung condition responded to treatment, so also did the laryngeal condition. Sometimes local treatment was fatiguing and distressing to the patient, and when that was so the physician must forbid it. Before cauterisation was undertaken in any case the physician must be consulted, and there must be absence of night-sweats and increase of temperature, and the general condition must have been stable for some weeks. If doubt existed there must be no cauterisation. The objects of local treatment were threefold: (1) to reduce the discomfort of the laryngeal lesion; (2) to attempt a cure; (3) to relieve pain. The silence enjoined must be complete, but not unless there was hope of the patient getting better. Cauterisation with the actual cautery he regarded as a very valuable aid; indolent ulcers responded well to this. He did not like the cautery if the laryngeal lesion was active.

Dr. W. JOBSON HORNE said that many years ago he published, in the *Journal of Laryngology*, a summary of the research he had carried out, when he had the run of the dead-house at a hospital and examined the larynx of every case which had died with tuberculosis of the lung and no clinical evidence of laryngeal damage. The larynx was carefully microscoped, and in several cases he found evidence of the disease in the inter-arytenoid region; he also found a definite myositis of the inter-arytenoid muscle. The earliest clinical evidence of laryngeal trouble—he might almost say of pulmonary trouble—was not hoarseness but weakness of voice. Histories carefully taken would often reveal that what the patient noticed first was not only dysphonia but at times aphonia. He often found tubercle bacilli in the ventricle of Morgagni post mortem when the larynx showed no evidence of disease. He agreed that hæmoptysis did not come from the larynx. Laryngeal tubercle did not occur until there was a cavity in the lung. In children one did not see laryngeal tuberculosis, unless ulceration extended into the base of the lung. If a case of laryngeal tuberculosis was treated in a sanatorium and the lungs put right, the larynx would take care of itself.

SECTION OF PSYCHIATRY

ON Nov. 10th Dr. T. A. Ross delivered to this section his presidential address on

Medicine and Science

Dr. Ross referred to the widespread desire among the members of the medical profession, and not least among psychiatrists, that their work should be deemed to be scientific. It behoved them sometimes to pause and consider how far it was possible, or indeed desirable, for it to be scientific. In certain aspects of medicine science was urgently needed, but that did not necessarily apply to all aspects. Two things had to be considered; (1) what was meant by science, (2) what did doctors imagine themselves to be, what was their function, what were they aiming at.

WHAT IS SCIENCE?

Science was said to aim at the power of prevision based on quantitative knowledge. It provided formulæ summarising the maximum number of past phenomena in the simplest, most concise, and most frugal manner possible, enabling the sequence of future phenomena to be foretold with the maximum economy of thought. Accepting these "brave words, with which no one ought to want to quarrel," Dr. Ross proceeded to discuss whether this promise of a tool of immeasurable value, a servant beyond price, was really being fulfilled. The deification of science had begun in the middle of last century, when it was hoped that it was going to make this world at long last a place fit to live in. It had not done so, because certain other factors not amenable to scientific method had been forgotten or overlooked. It was necessary to recognise what belonged to the category of science. The observations on which scientific formulæ rest must be demonstrable to others. They must permit of discrimination to ascertain that no personal bias has entered in, and therefore there must be no appeal to authority as an argument whether a statement is true or false. The observations must lend themselves or give promise that they would lend themselves to quantitative results. Causes must not be multiplied except by necessity, and yet the formulations must be comprehensive enough to cover the phenomena. There must be constant reference from the formulations back to the observable phenomena to check the former; and there were other postulates. In order to show how far eminent scientists had followed these rules which they themselves laid down, Dr. Ross traced the history of one branch of science, astronomy, from Copernicus, through Kepler, Tycho Brahe, Galileo, and Newton, up to modern times, showing how the fathers of modern science broke one of their own important rules, because on the whole they felt more comfortable in the new view, because they liked it better than the old one, because it enabled them to get on more easily with their investigations. To him this seemed important. The value of a theory depended not on its perfection but only on whether it enabled workers to get on with their investigations. The question of it being quite true belonged indeed rather to philosophy than to science. The later history of science—e.g., of physics and biology—furnished many similar examples. It was doubtful whether at any time the rules had been or even should have been followed by the greatest scientists. Dr. Ross went on to examine the rules themselves to ascertain whether they were indeed good rules. One was that the methods of observation should be public, that is, repeatable by someone with similar training so that the results could be checked. This suggested at once the question whether psychological investigation conducted as it was, with the subject and investigator alone together, could be of value. This method, essential to psychoanalysis, was often attacked. A biased observer was said to be exercising suggestive influence over an enslaved subject, and of course got the results he wished. In most laboratories as well as in analytical consulting rooms, however, this was common practice. Pavlov's directions for the technique of observing dogs insisted on a privacy so complete that it must be the envy of every psychoanalyst. Publicity was ensured for both these kinds of workers in exactly the same way. It was open to anyone to build a laboratory or to arrange a consulting-room exactly as described. Some who had done the latter and followed Freud's technique had differed from certain of his findings, but Dr. Ross did not think that any had doubted his basic views of displacement, condensation, repression, and a dynamic unconscious. An investigator like Bartlett, not specially interested in psycho-analysis—who also saw his subjects in private—had shown how all remembering was charged with accretions, which had nothing to do with the thing to be remembered, but had to do with the interests of the subject. At the time of remembering, Bartlett's subjects had no notion that they were doing anything but reproduce what they had been asked to remember, no inkling that they were introducing their own interests and prejudices. The picture Bartlett gave suggested that their unconscious was seething with ideas ready to escape into consciousness on the slightest provocation or on none, in season or out of season. And if this was so, it was possible to understand the tension caused by ideas which are not acceptable to consciousness, and therefore kept in a state of repression. It was difficult to understand how certain people could sit down day after day with patients and let them talk, and yet remain unconvinced that there is a repressed unconscious, and how anyone escaped observing it working in himself.

It had been said that this idea of an active unconscious arose from animistic longings on the part of those who believed in it. It gave them a continuum from an event or a perception to its recall, and that continuum was nothing more or less than a soul—the sin of animism. But every one of us had an *inescapable feeling* that the continuum exists. The fact of an unconscious mind, if it were a fact, explained nothing about it. It was accepted by some for exactly the same reason that the strange Copernican system was accepted by Kepler, the reason that it was found to be of use in daily work. Dr. Ross gave in detail an example from his practice, one of many examples of cases in which the theory of the unconscious had helped him in his work. Privacy was essential, since the fear of condemnation by the herd was one of the reasons for self-condemnation. If a member of the herd was found who listened quietly without criticism and condemned nothing, the weight of reason for self-condemnation was lessened; the reason for repression was lessened. It was only the psychotically depressed who wanted to condemn themselves, the neurotic wanted an excuse. Public observation could not be the method of psychology as it could be on astronomy or chemistry. The observations could not be demonstrated before a class; but they were public in the sense that anyone with a little practice could repeat them.

The defect of the rule about authoritarianism was that it was an impossible one, human nature being what it is. Quantitative results, again, were not possible in a psychology which was to be of therapeutic value. It might be possible to measure intelligence, but things of even more importance than intelligence, such as hate, greed, ambition, sense of humour, fear, and the like, could never be measured; such things could nevertheless be investigated objectively. Measurement was of course a good thing; but measurement was not the only method of being exact. For much of medicine logic and not measurement would suffice. It was not necessary to bother too much about the rules for scientific inquiry. They were quite good rules but one must have conceptions. If these covered most of the phenomena this was as much as could be expected. Dr. Ross, looking back on his own experience, said that when he was young he believed in a condition called nervous exhaustion. The Weir Mitchell system of treatment seemed to meet it, and he was able to help quite a number of people. Then as he went on the number of facts not covered by the theory seemed very many, and he went on working without a conception and helped very few people. Then Dejerine with his conception of current pre-occupations seemed to cover most of the phenomena and Dr. Ross was again able to be useful. Then there were many examples which his conceptions did not cover; the conception of repression into an unconscious covered more, and seemed not to clash with but to supplement Dejerine; and now he could work happily, as he could not when he had lost faith in Weir Mitchell, and not yet got anything else.

Some still thought it might have been better if there had been no psychological awakening; they advocated a neurological approach to psychiatry. It was difficult to have patience with the cry for a neurological approach when people who had never dared to tell their story for fear of condemnation or mockery were in great misery and could be helped. For them a knowledge of social and domestic conditions was more important than neurology, and here the general practitioner would be the person best fitted to understand, if he were not discouraged by being told that psychotherapy is beyond him. He knew far more than anyone else about the anxieties, jealousies, and hates which go on in every household, and he had learned how to approach people humanly. If doctors refused to use "unscientific" approaches there are plenty of the laity eager to take up the task. But the symptoms of neurosis were so like those of physically determined disease that the person who handles these patients ought to have had a medical training.

WHAT DOCTORS SHOULD BE

There remained the question what doctors were aiming at. Dr. Ross's view was that primarily their business was to take full care of the sick and to look after them very much as good nurses looked after children. The really good children's nurse, who was of course often the mother, was often the only person who helped children to develop courage, self-reliance, truthfulness, and all other desirable qualities; in fact she was the first psychotherapist whom the children came across. Nearly all patients had made some regression to childhood or had remained fixed in states of absence of self-confidence, manifest or latent. And this high-sounding name of psychotherapy meant merely that those practising it should continue the good work which the nurse started long before, or begin it if she had failed to do so. It was also right to aim at increasing knowledge, but this could seldom be done with anything like respect for scientific rules—e.g., controls. Science was certainly necessary in medicine, but the demand for absolute certainty before views were published would never lead anywhere. Conceptions must cover a large part of the phenomena to be studied if they were to be useful; they would not cover all. But it was essential for progress that conceptions, even if imperfect, should be framed. Knowledge was useless unless combined with wisdom. Dr. Ross urged the profession to show more wisdom before the world and to display not the differences but the large body of psychological knowledge about which all were agreed.

ANNOTATIONS

LORD NUFFIELD'S BENEFACTION

SOME further details of the terms of Lord Nuffield's benefaction to the University of Oxford [1] are set out in the decree to be presented at the meeting of Congregation on Nov. 24th. The gift is to take the form of an annuity of £192,307 payable half yearly for six and a half years on conditions laid down in a deed of covenant and trust. There are to be ten trustees, including the regius professor of medicine, two persons appointed by the governors of the Radcliffe Infirmary, and one person appointed by the committee of the Wingfield-Morris Orthopædic Hospital. The committee responsible for preparing, and as need arises for modifying, a scheme for the development of the school of medicine, including the Nuffield School for Medical Research, is to be composed of the vice-chancellor, the regius professor of medicine (who is to receive the sum of £300 per annum as a special allowance in respect of his activities in the development of the scheme), the four Nuffield professors of clinical medicine, surgery, obstetrics and gynæcology, and anæsthetics (to be appointed "as soon as practicable," each at a salary of £2000 a year); three persons appointed by the board of the faculty of medicine, and persons appointed by the authorities of the Radcliffe Infirmary (2), and the Wingfield-Morris Hospital (1). The regulations suggested for the Nuffield professors include provisions to ensure their residence in Oxford for 40 weeks in the year, except that they may be granted such leave of absence for purposes of study as the committee may determine. They are not to engage in private practice but may under conditions approved by the committee receive fees from patients attended in the hospitals associated with the school. They shall retire at 60 unless the visitatorial board of the university grant an extension not exceeding five years.

TROPICAL TYPHUS

OF late years fevers of the typhus group have been recorded from most parts of the world. It is surprising therefore that few references—and none of them conclusive—are to be found regarding these diseases in West Africa, though their existence has been established in the north, south, and east of the continent. A note from the Sir Alfred Jones Research Laboratory by Dr. Gordon and Dr. Davey [2] fills the gap by recording three cases in Sierra Leone, all in Africans, in which the clinical and serological observations make the diagnosis certain.

It may be remarked, however, that "tropical typhus," though it has gained currency, is an undesirable designation. Both in India and Malaya it covers at least two distinct rickettsia infections, one, the "shop typhus" of Malaya, serologically identical with the historical exanthematic typhus, the other, serologically and in certain respects clinically distinct, the "scrub typhus" of Malaya and the tropical typhus described by Megaw in the Kumaon Hills of India. Tropical typhus, in fact, means simply rickettsia infection in man in the tropics, and certainly includes two and probably more diseases, each differing in the animal species forming its natural reservoir and in the insect vector responsible for its transmission to man. A primary indication for these differences is the varying serological response to the different types of *proteus* X. The serum of the sufferer from classical typhus (louse-transmitted and with man as possibly the sole reservoir) agglutinates to the highest titre the type X 19, while that of scrub typhus (mite-transmitted and with rodents probably the reservoir) hardly agglutinates X 19 but agglutinates strongly the type X K. The explanation of the undoubted association of different types of *proteus* X agglutination with different rickettsias is still obscure. Felix has always maintained that the connexion of *proteus* and rickettsia is direct, in spite of the inability of *proteus* bacteria to produce the disease. The suggestion is that each is a stage in the life-cycle of a micro-organismal entity. Certainly the increasing evidence that different types of *proteus* identify infections with different rickettsias serologically is difficult to interpret in any other way. It is of interest that, of the three cases in Gordon and Davey's report, one is serologically divergent from the other two, the serum of the former agglutinating best the type X 2, while the sera of the latter agglutinate best the type X 19. No doubt the authors of this preliminary report have in mind further investigation to account for the divergence. One of the first and most obvious steps would be to search for types of *proteus* specifically associated with the rickettsia infections occurring locally.

REGIONAL ILEITIS (CROHN'S DISEASE)

IN 1932 Crohn and his associates,[1] under the name of "regional ileitis, a pathologic and clinical entity," described 14 cases of a chronic inflammatory condition of the ileum causing diarrhœa, intestinal obstruction, and fistula. This and other observations on "Crohn's disease" were reviewed in our columns last February by Dr. R. F. Barbour and Dr. A. B. Stokes, and a fairly typical example was described in our issue of Oct. 24th by Dr. Herta Schwabacher. The condition is chiefly seen in young adults and occurs in at least four different clinical types: in the first there are symptoms of acute abdominal disease, indistinguishable from acute appendicitis; the second resembles other varieties of ulcerative enteritis, giving rise to diarrhœa, colicky abdominal pain, and slight fever; the third is the commonest, its main feature being intestinal obstruction; while the last is distinguished by persistent fistulæ b ting the abdominal wall and the gut, often fol and operation. The physical signs are characteristi most constant findings being a mass in the righ region, fistula formation, emaciation and an the scar of a previous appendicectomy, and ev unt of intestinal obstruction. In addition Kantor sen described certain radiological signs, the most imp the of which are dilatation of the ileum above the stma and a narrow string-like shadow of the o tain emulsion in the stenosed lumen of the affecte not The pathological lesion is a non-specific gr m- matous infiltration of the terminal ileum, asso with ulceration of the mucosa, stenosis of the and fistulæ; foreign body giant-cells are often The ætiology remains uncertain, but it seems that the ulceration of the ileum is secondary to lomatous infiltration of its wall. Tuberculos carefully excluded by Crohn in all his cases, found no other cause. The relationship b Crohn's disease and so-called ileocæcal tube calls for immediate investigation, and the onl factory means of settling the problem is guinea-pig inoculation of material from every case operated upon, the histological picture being an uncertain criterion.

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[1] THE LANCET, Oct. 17th, p. 953.

[2] Gordon, R. M., and Davey, T. H.: Ann. Trop. Med. and Parasit., 1936, xxx., 203.

[1] Crohn, B. B., Ginzburg, L., and Oppenheimer, G. D Amer. Med. Assoc., 1932, xcix., 1323.

[2] Kantor, J. L.: Ibid., 1934, ciii., 2016.

The treatment of Crohn's disease is generally admitted to be surgical. The three main possibilities are to short-circuit the lesion, to resect it, and to short-circuit it first and resect it later. Crohn originally advocated resection, but admitted that he had not had much experience of simple short-circuit in these cases. If a short-circuit was made he thought it should be combined with exclusion of the lesion. Mixter[3] also prefers resection but says the mortality is high and it may have to be done in more than one stage. Meyer and Rosi[4] suggest a practical compromise as follows: Since a short-circuiting operation is less risky than a resection, it may be that a two-stage resection for cases of regional ileitis is the best plan. If the symptoms disappear after the short-circuiting, no further surgery is required; but if they persist or grow progressively worse, resection is clearly necessary.

NITRITE POISONING

FATAL poisoning by nitrites is exceedingly rare, and for this reason it is useful to have Dr. McQuiston's observations on three cases at Middlesbrough (see p. 1153). The victims of this accident died from poisoning by sodium nitrite; not long ago a death from potassium nitrite was reported from Madras.[5] The experimental toxicology of the subject rests largely upon the studies made by Dossin.[6] It is noteworthy that the Middlesbrough cases "went blue." The cyanosis confirms the point made by Solis-Cohen and Githens[7] that the dangerously toxic action of the nitrites lies in their destruction of hæmoglobin. Their action upon plain muscle is the basis of their therapeutic value. Hence there is little danger from the use of these substances in treatment, because the formation of methæmoglobin from therapeutic doses is negligible.

INTERNAL DECOMPRESSION

ABOUT a fifth of all intracranial tumours are of the type of glioma known as spongioblastoma (glioblastoma) multiforme. It infiltrates the brain rapidly, is so in consistency, and has a rich supply of thin-walled blood-vessels. Post mortem the cut surface tumour displays a great variety of colours, due gent and old hæmorrhages and areas of necrosis. ever drastic, surgery never eradicates such a lasm; in fact, the survival period is seldom r than six months, though irradiation has somes seemed to give temporary benefit. It is not surprising that many neuro-surgeons feel justified fusing operation where the pathological diagnosis uch a tumour can be made with reasonable inty. In a proportion of cases, however, its re can only be ascertained by histological ination of fragments obtained at craniotomy—amination preferably performed while the surgeon . What is then the procedure of choice? If tion is concluded as soon as the diagnosis has made the patient is likely to die in a day or so hæmorrhage into the tumour or from cerebral œdema. To avoid this it has been customary to perform a wide decompression, with or without an extensive removal of the tumour. To this McKenzie of Toronto now suggests[1] an alternative which he aptly terms "internal decompression." A large mass of the tumour and overlying brain is removed so as to create a wide cavity, no attempt being made to reach the boundary of the tumour; after careful hæmostasis the dura is sewn up completely and the bone flap fixed tightly in place; and in this way any decompression, as commonly understood, is avoided. Results are satisfactory, inasmuch as the remaining short period of life can be spent usefully, with a minimum of physical disability, for symptoms and signs may at times retrogress remarkably. As the tumour grows, it fills up the space provided, without there being any disfiguring bulge from an external decompression. Moreover, it is stated that death, when it comes, is mercifully rapid; so that the patient escapes the lingering state of paralysis and semi-coma which too often follows a sub-temporal decompression.

THYROIDECTOMY AND THE HEART

WHEN total thyroidectomy is performed for angina pectoris, the relief of pain appears before there has been any appreciable fall in the basal metabolic rate. This early therapeutic effect has been attributed on the one hand to the severance of sympathetic nerves in the neck, and on the other to a reduced sensitiveness to, or diminished production of, adrenaline. Some clinical experiments bearing on this problem have been made by Bérard, Cutler, and Pijoan,[2] who observed the consequences of insulin injections in ten patients who had had total thyroidectomy for angina. In the normal person it was found that 25 units of insulin given intravenously caused an average maximum fall in blood-sugar of 50 mg. per 100 c.cm., and at the same time an elevation of blood pressure, averaging 30 mm. systolic and 12 mm. diastolic. In the patients subjected to thyroidectomy, on the other hand, a similar injection led to little or no rise in blood pressure, though the blood-sugar fell as it did in the normals. The transient hypertension provoked in normal subjects by artificial hypoglycæmia is interpreted as due to compensatory hypersecretion of adrenaline, whose object is to establish a normal blood-sugar level, while the failure of this hypertensive reaction after thyroidectomy suggests a deficiency of adrenaline action. The therapeutic results of the operation had been good in all but one of the ten patients investigated, and it was noted that in this one alone the insulin injection produced a distinct rise in arterial tension and also precipitated an anginal attack. Hypoglycæmia was induced by the same method in two other groups—patients with hypertension liable to hypertensive crises, and patients with Addison's disease. In the former the increase in tension was abnormally great, while in the latter it was negligible. These results are held to confirm the view that the suprarenal is essentially concerned in this reaction, and Bérard and his co-workers conclude that the value of thyroidectomy depends far more on an altered thyro-suprarenal mechanism than on a reduction in the metabolic rate.

To know more about the cardiac changes associated with severe myxœdema has become increasingly important since therapeutic hypothyroidism was introduced, and while it has been generally accepted that the heart enlarges in this disease—it may shrink under appropriate treatment—the pathology of the enlargement has remained obscure. By way of experiment Webster and Cooke [3] removed the thyroids of adult rabbits and examined them 5–7 months later when they had developed signs of myxœdema, confirmed by estimation of blood cholesterol. The hearts of these animals were found to weigh less than those of normal controls, but the fluid content of the heart muscle was greater (82 per cent. compared with 76 per cent for the controls). Microscopically, the myxœdematous heart muscle showed reduction in the number of fibres, œdema, and disappearance of the perinuclear sarcoplasm. While these results are interesting it cannot, however, be assumed that similar cardiac changes occur in the human subject with a diseased heart after removal of the thyroid. Therapeutic myxœdema is much milder than that of the experiments, and the relief of circulatory symptoms that is commonly experienced suggests that the myocardial change is probably towards normal rather than otherwise.

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[3] Mixter, D. C.: Ann. of Surg., 1935, cii., 674.

ver, K. A., and Rosi, P. A.: Surg., Gyn., and Obst., 1936, p. 977.

agopal Naidu, S., and Venkat Rao, P.: Brit. Med. 1936, i., 1300; see also Ann. Rep. for 1935 of Chem. ner to Govt. of Madras.

sin, G.: Arch. internat. de pharmacodynam., 1911, 5.

s-Cohen, S., and Githens, T. S.: Pharmacotherapeutics, ork, 1928, p. 1328.

[1] McKenzie, K. G.: Arch. Neurol. and Psychiat., 1936, xxxvi., 542.

[2] Bérard, M., Cutler, E. C., and Pijoan, M.: Presse Méd., August 15th, 1936, p. 1307.

THE PUBLIC HEALTH ACT, 1936

THE Minister of Health has sent out a circular (No. 1576) to local authorities to encourage them to study the huge consolidating Act which was passed last July and which takes effect on Oct. 1st, 1937. He attempts no complete survey of its 347 sections which occupy some 200 pages of the statute book. So formidable a task was unnecessary since much of the new Act merely reproduces the old law. He draws attention, however, to certain sections which are new. The scope of building by-laws, for instance, has been enlarged. Existing by-laws of this nature will automatically cease to have effect after three years, and all future building by-laws will expire ten years after they are made. Another new provision is the power given to local authorities to make by-laws for control of swimming-baths and bathing pools under private management where members of the public are admitted on payment. For a complete list of all the new features a prolonged comparison of the recent Act with the sixty statutes which it replaces would be required. The ordinary student of public health will probably prefer to await the issue of the inevitable new text-books.

The wave of reforming zeal which produced the new code (and also the new consolidating Public Health (London) Act) is not yet spent. It is understood that the Ministry of Health will now produce yet another Act to replace the still unrepealed passages in the Public Health Act of 1875 which deal with such matters as unsound food, markets, and slaughterhouses. This is a laudable step; it is inappropriate that our national standards of health should be based on an Act which is more than sixty years old. Presently the indefatigable committee, which has already rewritten so much of the English law of local government and public health, will tackle the surviving laws about highways, largely based on legislation of 1837. Meanwhile the London County Council is said to be contemplating the early production of a code of local government on the lines of the Local Government Act of 1933, most of which was inapplicable to London. And the L.C.C. is also to produce an amending Public Health (London) Bill to bring London into line with the rest of England where the recent Public Health Act has advanced the national standard. No sooner, in fact, has London got its new code than it begins at once to tinker with it. The truth seems to be that some of our laws are nowadays so encrusted with overlapping statutes that it is impossible to see the way to amend them without first writing them out as an orderly whole.

SIR HENRY CURTIS-BENNETT

THE death of Sir Henry Curtis-Bennett has removed a figure almost as well known in medical circles as in the legal profession. Ever since the day when he took silk in 1919, and even before this, his name had been associated with important medico-legal cases, or criminal cases having a like bearing. He gradually succeeded to the great forensic practice of Marshall Hall, and in the last few years there has been practically no case of medico-legal importance with which he was not associated.

We owe the following tribute to "W. H. W." and "G. de B. T." who write: "As an advocate Sir Henry Curtis-Bennett could be suave in manner, stern or humorous in turn, and all without upsetting his witnesses or imperilling the issue for his clients. He figured in many famous medico-legal cases in the last twenty years, and always put his case fairly, even when placing his client's interests in a good light. He was perhaps at his best in motor-car cases, where the question arose of the defendant being under the influence of alcohol. His critical survey of the tests for drunkenness always aroused amusement, and even merriment in court, often to the advantage of his client, and he was a leading advocate in licensing cases. He was a great favourite as an after-dinner speaker and seemed to have an inexhaustible supply of good stories, many of them deliberately told against himself. He had for many years been one of the principal guests at the annual Buckston Browne banquet of the Harveian Society of London. The loss is great, his place difficult to fill, and he will be sadly missed, not only by his family and the members of the Bar but by scores of medical men who were fortunate enough to be numbered among his friends and acquaintances."

AND SOME WOULD EAT THAT WANT IT

ACQUISITION by purchase is a tortuous phra
buying, and at a public meeting held in L
by the Committee against Malnutrition on Nov
it was suggested by the speakers that our syste
distributing food to the nation is as inefficient a
phrase. Dr. Maitland Radford, medical offic
health for St. Pancras, said that to-day few o
were hunters, farmers, or fishers; we had to bu
our food and the importance of our system
therefore been increased. He appealed for an off
scale of nutrition to be set up similar to the s
of overcrowding. Dr. T. O. Garland, medical of
for Carreras Ltd., maintained that the med
profession to-day knew how to improve the nat
dietary, but were not being allowed to use o
knowledge to the best advantage. He gave
audience sound advice as to how to convert
ostrich-like friends to the fact that malnutr
does exist and that it is due to poverty. Mr. H
Macmillan, M.P., who was in the chair, consi
the abandonment of restrictions on production
the distribution of plenty as essentials. He supp
Dr. Radford's suggestion of a nutrition scale
proposed further that a National Food Council sh
be set up, representative not only of producer
also of consumers and scientific workers, to form
a national food policy. At the beginning o

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[3] Webster, B., and Cooke, C.: Arch. Internal Med., August, 1936, p. 269.

meeting Dr. Edith Summerskill had introduced the nutrition films of the Gas Light and Coke Co. Mr. F. Le Gros Clark, secretary of the committee, also spoke briefly describing its work and appealing for support. He may be addressed at 19c, Eagle-street, W.C.1.

MEMORIAL TO SIR WALTER FLETCHER

A PORTRAIT-BUST of the late Sir Walter Morley Fletcher was unveiled on Wednesday afternoon at the National Institute for Medical Research, in the library of which the bust will be permanently placed. The bust is the work of Miss Dora Clarke and the subscribers to the memorial fund have secured from her a dignified likeness of the great organiser who was the first secretary of the Medical Research Council, a post which he held for nineteen years. The subscriptions to the fund amounted to over £2300 and, after the cost of the personal memorial has been met, the money will be used in the construction of the Walter Fletcher memorial laboratory, at the farm laboratories of the National Institute at Mill Hill where research work in nutrition will be carried on.

OBSERVATION OR EXPERIMENT ?

In the latest number of *The Fight against Disease* the Research Defence Society usefully republishes a arge part of the evidence given by Lord Justice letcher Moulton before the Royal Commission on visection in 1907. Few men were better qualified judge the merits of scientific investigation or to se the value of research. To him the real issue whether curative science should be observational perimental. With observation progress was slow. eriment brought rapid advance and free range. eriment was like cross-examination; the specific tion could be put to nature and she would er. She does not care what the questioner nt to ask; she answers what he actually does ask. Lord Justice took as a typical example the com- cability of consumption. Observation must ringly watch the disease running through a y or prevalent in a particular place; heredity, te, or soil may suggest predisposition and may ply the causes of uncertainty. Experiment the actual question. Half a dozen guinea-pigs l in the wards of a consumption hospital are to be tuberculous; half a dozen other guinea- placed in another hospital in the same con- s of temperature are found to be free. The ce may be over-simplified; it involves no g of animals, but its trial would presumably divide mankind on vivisectionist and anti-vivisectionist lines. For those who approach these problems on the humanitarian ground of rejecting all experiment on animals the Lord Justice had another instance. He asked them to imagine the case of a plague-stricken ship, with rats on board, arriving in port. One man, with a high sense of responsibility and with knowledge of the strong probability that rats convey plague, unhesitatingly extirpates the rats even though his method may mean their painful death by poisoning or asphyxiation. Another man cannot bear to see the rats harassed by the relentless pursuit; he lets as many as he can escape. The consequence may be to communicate plague not merely to a town but to a nation; the prospect is one of measureless misery. He has failed to weigh the inflicted pain against the mass of preventable pain. Lord Justice Fletcher Moulton continued with a further hypothesis. Suppose that the killing of the rats resulted not in the prevention of plague but in the discovery of the antiseptic treatment. The antiseptic treatment, we know, put an end to an amount of human suffering which can scarcely be calculated. Suppose the alternative was not "extirpate the rats or admit the plague" but "extirpate the rats or fail to discover the antiseptic treatment." The thoughtful man must answer "If I do not inflict this pain, I permit an unmeasured amount of pain which I could prevent." The duty is to follow the course which produces the minimum total pain; "whether it is inflicted pain or preventable pain which is not prevented," said the Lord Justice, "is in my opinion one and the same thing."

CARBOHYDRATE DYSPEPSIA

COLON flatulence is a common complaint and has several causes. Formation of some gas in the intestine is a normal process and such gas is a normal stimulus to peristalsis. Gas may arise from swallowed air passing down from the stomach, or from fermentative or putrefactive processes taking place in the intestine. In general fermentation leads to acid stools and the gas, being mainly carbon dioxide, is relatively odourless; putrefaction, on the other hand, produces alkaline stools and the gases are highly offensive. When an excess of fermentative gases is formed, the fault may lie in one or more directions, and these are the subject of an interesting paper by Dr. W. H. Owles.[1] The theory that an abnormal bacterial flora in the intestine is the primary cause, or that organisms normally found in the large intestine have abnormally spread upwards into the small, he regards as unlikely, and he prefers to attribute the gas to the fact that carbohydrate which should normally be broken down in the small intestine reaches the colon in a still fermentable state. In the normal stool partially digested starch granules can scarcely be discovered, and even in pancreatic disease, where pancreatic diastase is likely to be defective, it is rare to find excess of starch in the stool without also a considerable excess of neutral fat and partially digested protein (striated muscle-fibres). Dr. Owles concludes that carbohydrate dyspepsia is due to the abnormal fermentation of starch in the colon and is not primarily attributable to any diastatic enzyme deficiency in the pancreas or small intestine. He puts down the presence of fermentable carbohydrate in the colon to an undue hurry in the small intestine, through which its contents reach the bowel before starch digestion is complete. To support this contention he has analysed a number of cases in which the passage of a barium meal through the small intestine was unduly rapid, and a further series in which an excess of starch was found in the fæces; of the latter 130 cases, 52 had radiological evidence of either "marked" or "less marked" hurry in the small intestine. Of 34 patients having an unduly fast passage of barium through the small intestine, all but two showed an excess of starch in the stools. Whether rapid small intestine movement is or is not constantly associated with carbohydrate fermentation, the cause of such intestinal hurry should of course be determined if possible. This may be none too easy, but among the possible causes Owles mentions the over-use of purgatives, gastro-enteritis, and nervous diarrhœa. Achlorhydria did not appear to be causally related.

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[1] Guy's Hosp. Rep., October, 1936, p. 411.

The recognition of carbohydrate fermentation by the careful examination of the fæces should at least lead to symptomatic treatment in the form of restriction of starchy foods. It is not unlikely indeed that further knowledge will come from the clinical rather than the bacteriological side.

THE HÆMOPOIETIC SUBSTANCE IN LIVER

FRESH progress in the purification of the blood-forming principle of liver has lately been reported from England, Sweden, and America. Dr. H. D. Dakin (New York), Dr. C. C. Ungley (Newcastle-on-Tyne), and Dr. Randolph West (New York),[1] working in collaboration with Mr. F. H. Carr, D.Sc., of British Drug Houses, Ltd., have now isolated a highly purified product which they believe to be a peptide or closely related to a peptide, possessing many, though not all, of the properties of an albumose. Glucosamine, they now claim, is not an essential component of the active molecule, as was suggested in earlier work. They consider that the substance now isolated has a molecular size of 2·1 mμ and a molecular weight greater than 2000 and less than 5000. On hydrolysis the peptide yields arginine, leucine, glycine, proline, hydroxyproline, aspartic acid, and an acid resembling hydroxyglutamic acid. They failed to isolate a similarly active hæmopoietic principle from either kidney or brain, using the same chemical methods. This negative result is of no little interest since it is usually agreed that whole kidney, taken by mouth, is as active as liver, while brain has also some definite hæmopoietic action. It is possible that brain and kidney are sources of Castle's intrinsic factor; this remains to be tested. In this connexion it must be remembered that hog's stomach is effective when given by mouth, but no one has yet managed to prepare active extracts of stomach by methods applicable to liver extraction. It is possible, though perhaps unlikely, that liver and other organs contain more than one substance effective in Addisonian pernicious anæmia. Subbarow and Jacobson[2] claim that at least three chemically distinct fractions of liver are necessary for an optimum clinical response. They identify these as tyrosine, a complex purine, and a biuret-positive peptide. The two former are not present in the purest preparation made by Dakin and his colleagues. Laland and Klem[3] have described a preparation effective in even smaller amounts than that of Dakin; it is acid and bright yellow and contains sulphur, whereas that of Dakin is neutral and colourless and contains no sulphur. It is clear from these conflicting results that the chemical nature the of hæmopoietic factor is still obscure.

THE next session of the General Medical Council will open at 2 P.M. on Tuesday, Nov. 24th, under the presidency of Sir Norman Walker.

THE honorary fellowship of the American College of Surgeons has been conferred upon Sir James Walton, surgeon to the London Hospital, and Dr. W. Fletcher Shaw, professor of clinical obstetrics and gynæcology at the University of Manchester.

WE regret to learn of the death on Monday last of Lieutenant-Colonel Robert Henry Elliot, the honorary consulting ophthalmic surgeon to the London Hospital for Tropical Diseases. He had retired from the Indian Medical Service in 1915 after holding for many years the chair of ophthalmic medicine at Madras and becoming well known for his work on snake-poisoning.

ON Thursday, Dec. 3rd, Mr. Hugh Lett will deliver the Bradshaw lecture to the Royal College of Surgeons of England, speaking on the early diagnosis and the treatment of renal tuberculosis. A week later Dr. George W. Corner, professor of anatomy in the University of Rochester, will deliver the Thomas Vicary lecture. His subject will be Salernitan surgery in the twelfth century. Both lectures will be given at the college at 5 P.M., and all members of the medical profession are invited to attend.

Dr. R. A. Young made his last ward round at the Middlesex Hospital on Friday afternoon, Nov. 6th, when he was accompanied by nearly 200 of the present and past students. After the round he met his colleagues, the house staff and the students in the board room, to take leave of them on his retirement from hospital duties, although not from the practice of his profession. Dr. H. F. Brice-Smith of Dorking made a presentation of a silver salver inscribed with the signatures of his house physicians since the war. Dr. Young has served the hospital and school for a period of 44 years, beginning as demonstrator of physiology in 1892. He was house physician in 1894, warden of the college from 1899–1904, assistant physician from 1902–1918, physician from 1918 to the present time. He also lecturer in physiology from 1896–1903, pathologist from 1903–1905. Dr. Lakin now suc Dr. Young as senior physician to the hospital.

MENTION in the King's Speech of comprehen measures to improve the physical condition of nation has been followed, as our Parliamen columns testify, by remarkable expression of opi in both Houses. Sir Francis Acland expressed del at the prominence given to a campaign for phys efficiency, but, he said, unless it was accompa by something on big lines in the way of better n tion, it would not get general support. Other spea developed this antithesis in their own way. Griffiths remarked that before they gave the p dumb-bells the Government should see that got sufficient food. Lord Horder began an impre maiden speech by reminding the Lords that f for living, for working, or for fighting can nev obtained by physical measures, whether educa or recreational. And Lord Dawson, attacking th blem at an even earlier stage, pleaded for a co hensive outlook, taking note of hereditary disab and of the necessity for a preventive attitu planning a fit race.

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[1] Dakin, H. D., Ungley, C. C., and West, R.: Jour. Biol. Chem., October, 1936, p. 771.

[2] Subbarow, Y., and Jacobson, B. M.: Jour. Biol. Chem., 1936, cxiv. (Proc. cii.)

[3] Laland, P., and Klem, A.: Acta med. Scand., 1936, lxxxviii., 620.

PROGNOSIS

A Series of Signed Articles contributed by invitation

CXX.

THE PROGNOSIS OF HÆMOCHROMATOSIS

THE published records of cases of hæmochromatosis (bronzed diabetes) show that the commonest cause of death (50 per cent.) has been diabetic coma. Insulin should be able to prevent this, and has had time to show its effect in changing the outlook. However, the effect of insulin in prolonging life has, to my knowledge, not been emphasised in recent publications, and the authoritative book (Sheldon, J. H.: Hæmochromatosis, London, 1935) mentions prognosis and duration with insulin treatment hardly at all. The duration of life after diagnosis is still given at 18½ months. It is suggested by other writers that many cases are resistant to insulin and others are unduly liable to hypoglycæmia.

NOTE ON TWELVE CASES

I have now treated a sufficient number of patients to show that such a gloomy prognosis is not the invariable rule. The progress of 12 well-known cases is therefore recorded in the Table, which omits traced and 4 doubtful cases. No details of their toms or pathological lesions in life or death iven and only the duration and mode of life is n. All these cases were sent to me as diabetics ppropriate treatment, but usually the condition mochromatosis had not been diagnosed. In he four classical symptoms—diabetes, enlarged pigmentation, and sexual hypoplasia—were t: They were all males, and 5 of the 12 are patients and have been kept in excellent by insulin without my ever putting them into ital or home.

Case No.	Age at diagnosis.	Year diabetes diagnosed.	Survival years since: Large liver observed.	Survival years since: Diabetes treated with insulin.	Insulin; units per day.	Mode of life.
ALIVE 1	40	1924	13	12	44	Pensioner from Navy.
2	46	1927	9	9	60	Active professional life.
3	51	1931	9	7	28	Active business life and mild golf.
4	62	1933	23	7	56	Plays golf well; recently survived appendicitis with peritonitis.
5	49	1930	6	6	40	Full business life and riding.
6	52	1933	8	3	60	Business, golf and riding.
7	42	1934	2½	2½	70	Recent tuberculosis.
8	44	1935	1	1	80	Fragile; semi-invalid.
9	75	1936	1	1	30	Retired; vigorous; fit.
[illegible]	40	1936	6/12	6/12	60	Died: streptococcal septicæmia from throat.
[illegible]	50	1929	6	6	70	Died: cirrhosis, ascites and pyonephrosis.
[illegible]	62	1930	3	3	30	Died: heart failure; bad ascites.

number of these cases is too small to make any cal generalisations on prognosis and duration of any value. Of the 12, 9 are alive and in reasonably good health. The longest survival, Case 1, seems in much the same condition as when first seen 13 years ago, and however much iron he has in his tissues and his very large liver, has always a mild anæmia. There are 6 who have survived more than 5 years since their severe diabetes has been treated with insulin. Some points will now be mentioned in more detail.

SPECIAL OBSERVATIONS

Insulin Treatment.—Some observers have stated that many bronzed diabetics are either resistant to insulin or very liable to hypoglycæmia. I have never found this so. Most require large doses of insulin (40–80 units a day in two doses) but this is no more than is necessary for severe diabetics of long standing. I have had no undue difficulty in balancing diet with insulin in hospital nor the patients in their home life. The diabetic element has never been so mild as to respond to diet alone and ketosis has been present before diabetic treatment in all but Case 9 (aged 75).

Liver Changes.—Most of these patients have had hard, large irregular livers, often sufficient to make them aware of an abdominal swelling. Three have felt certain that insulin increased the size of their livers, and I have personally confirmed this in two cases. Whether this is due to increase in liver size from stored glycogen and water is not known, but it seems a likely explanation. Tenderness of the liver, an infrequent symptom, has been more marked with its increased size.

Weight Changes.—Unlike most middle-aged diabetics after the beginning of insulin treatment there is no great and progressive gain in weight. They gain a few pounds with removal of dehydration but almost never regain normal nutrition and never become really fat whatever their diet or insulin. The one exception is my oldest patient, aged 75, who lost 42 lb. (20 kg.) in six months with the appearance of diabetic symptoms, but is rapidly becoming obese again on insulin treatment. He is the oldest case on record, but the diagnosis of hæmochromatosis is quite certain and is founded on the four typical symptoms and was originally made by Dr. Charles Newman, to whom I am indebted for handing over the case for treatment.

Onset of Diabetes.—However long standing the development of the disease may be, the onset of diabetic symptoms—polydipsia, polyuria, wasting, &c.—has usually been fairly sudden and produced an immediate change in the patient's health. In comparison to "ordinary" diabetes at this age, the diabetes has more quickly presented threatening symptoms and rapid and severe ketosis.

Normality of Life.—In 5 cases, an active and perfectly normal life has been followed for several years, including hard business or professional work with such added exercise as golf and riding. One (Case 4, aged 65) has recently survived acute appendicitis with peritonitis, and is now returning to his golf. Several others. I feel, are physically capable of such lives, but belonging to a lower social stratum and having been pensioned or retired, are never put on their mettle.

Causation and Alcohol.—Before I saw them, many of these patients had been diagnosed as alcoholic cirrhosis of the liver, but all were at most moderate drinkers. Some have insisted on continuing with a moderate consumption of alcohol which shows no sign of changing their general or liver condition.

Prognosis.—No one could yet venture on a prognosis for any particular patient, but it is clear that death can be postponed and activity made normal for many years. As Sheldon suggests, it is likely that a liver death (cholæmia, cirrhosis, and ascites) will replace diabetic coma. As regards the liver, I feel that of all forms of cirrhosis—a hard, very large liver—this is probably the best. Here no violent toxic background is present to kill the liver cells, but a slow mechanical cause, the deposition of an iron excess. This gives the liver time to hypertrophy and regenerate enough new cells to maintain full liver function. This can go on adequately for many years, how long no one knows. But no immediately gloomy prognosis is justified if the insulin treatment is successful. I see no reason to tell these patients that they have a fatal disease and think it best, if necessary, to say that their diabetes is complicated by a large liver. The intelligent ones should never hear the words "bronzed diabetes" or "hæmochromatosis" when perusal of the older encyclopædias must be unnecessarily depressing.

SUMMARY

The mode and duration of life of 12 cases of hæmochromatosis under insulin treatment is recorded. It is shown that a life of normal activity may be maintained for several years by this treatment.

R. D. LAWRENCE, M.D., F.R.C.P.,
Assistant Physician to King's College Hospital, London.

POST-GRADUATE LECTURES

THE following summary of an address given by Mr. Morris at the London Hospital concludes our series of abstracts of post-graduate lectures delivered at the autumn courses of London teaching schools.

SURGICAL TREATMENT OF FACIAL PARALYSIS

(MR. W. M. MORRIS)

I HAVE chosen this subject in view of the progress that has been made recently in the United States as a result of the experimental work of the late Dr. A. B. Duel and Sir Charles Ballance, in New York, starting in 1926. The good results of the operation devised by them for the grafting of fresh nerve from another part of the body, or even from another person of the same blood group, to repair an injury of the *facial nerve, are now generally acknowledged*, and this work is being carried on in America, since Dr. Duel's death at Easter last, particularly by Dr. Thomas Tickle, of the Manhattan Ear, Eye, and Nose Hospital, with whom it was my good fortune to be associated this summer.

The *commonest cause of facial paralysis* is, of course, Bell's palsy, the next common cause being injury of the nerve during the operation of mastoidectomy. There are other, less common, causes, and so it is essential that we trace the course of the nerve-fibres from the cortex to their distribution to the muscles of the face, if we are to be able to localise, with any certainty, the position of a lesion causing facial paralysis. Surgically, this is of the greatest importance, as it is only those lesions which occur in the Fallopian aqueduct which can be treated by Duel's method.

Starting then from the cortex, the motor fibres *run down to the VIIth nucleus*, situated deep in the lower portion of the pons, and they emerge as the motor root at the lower border of the pons, between the olive and the restiform body. Just before the motor root leaves the pons, it is joined by fibres from the IIIrd nucleus, which supply the following muscles —orbicularis palpebrarum, corrugator supercilii, and the anterior belly of the occipitofrontalis. Lesions occurring, therefore, in the cortex or in the course of the fibres to the nucleus or a little beyond, will cause paralysis of the muscles of the face (with the exception of these three), deafness due to paralysis of the stapedius muscle, but no loss of taste in the anterior two-thirds of the *tongue* for bitter and sweet. Neither will there be dryness of the mouth as the fibres supplying vasodilator impulses to the submaxillary and sublingual glands are not involved. The electrical reactions will be normal.

The lesion may be traumatic, embolic, or due to new growth and usually entails paralysis of the VIth nerve and hemiplegia. Suppose now that the VIth nerve paralysis and the hemiplegia have recovered, or that the VIIth fibres were alone involved, it can be distinguished by the fact that the three muscles named escape, and the sensory root is not affected, so that taste and salivary secretion are not interfered with.

Proceeding further along the course of the motor root, the next point of importance is the internal auditory meatus. Up to this point the motor and sensory roots are separate.

Occasionally the nerve is injured in the removal of an acoustic tumour. Injury in this portion will give a complete facial paralysis and deafness, apart from *deafness caused by the acoustic tumour*, but it may not affect the sensory fibres supplying the tongue and soft palate. Conversely, the sensory root, which is closer to the VIIIth nerve than the motor root, is, may be injured, and the motor root escapes.

In the internal meatus—that is, up to the geniculate ganglion—injury is most commonly due to fr[illegible] of the base of the skull, and nerves VI., VII., and [illegible] are usually involved.

The next important diagnostic site, from the surg point of view, is from the geniculate ganglion to stylomastoid foramen, which is the Fallop aqueduct. The aqueduct is divided surgically in two parts, an upper part which runs from the geniculate ganglion to the lowest part of the horiz canal of the labyrinth. This *portion, about* [illegible] *long, has a very thin external bony covering*, a [illegible] the commonest site of injury in the operation mastoidectomy. In the course of this upper por[illegible] the nerve to stapedius is given off, about ⅛ in. p[illegible] the geniculate ganglion, and injury above this b[illegible] *will produce deafness, below it will not.* In [illegible] lower portion, between ½ and ¾ in. long, of [illegible] aqueduct, the nerve runs through dense bone, an[illegible] is in this portion only that Bell's palsy occurs.

And here it is essential to give a clear defi[illegible] of what Bell's palsy is. It is due to inflam[illegible] of the nerve sheath or the nerve itself, due to tox[illegible] *or congestion due to changes of temperature*, occ[illegible] in the second portion of the aqueduct, whereby impulses are obstructed or totally inhibited.

The chorda tympani nerve is given off about ¼ in. before the stylomastoid foramen, and so a lesion in this part of the course of the VIIth nerve can be localised by testing the anterior two-thirds of the tongue, for bitter and sweet, acid and alkali. Lesions of the nerve after it leaves the stylomastoid foramen are usually traumatic, during operation or accident, or due to new growth of the parotid gland, and are easily distinguishable.

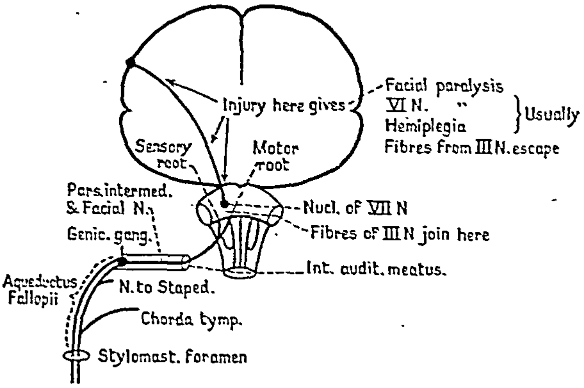
All the tests for deafness in localising the site of the lesion are straightforward in cases of Bell's palsy; but in injury during operation for mastoidectomy, there is always the deafness caused by the infection of the middle ear.

What we are considering to-day is the surgical treatment of facial paralysis. The old methods of anastomosing the distal portion of the nerve with the spinal accessory or hypoglossal have been discarded, except in injuries to the VIIth, during removal of acoustic tumours, &c., on account of the associated movements. Even in these cases there is the possibility of introducing a graft, but so far as my knowledge goes this has never yet been attempted. Surgical treatment is therefore, for the purposes of this lecture, confined to lesions occurring in the Fallopian aqueduct, and we will now consider the measures which can be taken to restore muscle function.

The most favourable cases are those of Bell's palsy. Here, owing to the inability of the nerve and its sheath to expand, as the result of inflammation or congestion, the nerve-fibres are constricted in this dense bony-walled canal and the nerve impulses cannot get through. Deprived of their blood-supply, the fibres die from the point of constriction onwards, but the nerve sheaths remain. If, therefore, the nerve is exposed, and the main outer sheath incised, circulation is restored, and eventually the nerve-fibres will again grow down their respective sheaths and function will be restored. Most cases of Bell's palsy, as you know, recover; some almost completely, others only partially. The difficulty is to know when and in which cases to advise operation for decompression. First, let me say that, if there is complete occlusion of the aqueduct, faradic response will be lost in 48–72 hours. If complete loss of faradic response is demonstrated it is advisable to continue the tests from time to time for, say, 3–4 weeks. If at the end of this time there is no response, the nerve should be exposed, the sheath incised, and the nerve decompressed. If faradic response is only partially lost, electrical massage and exercises of the facial muscles should be the treatment while there is definite improvement. When improvement ceases and there is no apparent progress, and there is much disfigurement, epiphora, &c., decompression and even an inlaid graft should be advised. This need not interfere with the fibres which have already started to function.

In cases of injury at operation, where faradic response is completely lost, the sooner the nerve is exposed and the site and extent of the injury ascertained, the better. The appearance of the nerve in these cases is typical. If the nerve is exposed within a few days of the injury, there is the obvious section. If the case is seen some weeks or months after injury, the nerve shows a very definite neuroma above the [illegible] of injury, and just a thin fibrous-looking sheath (which is all it is) distally. This is the type of case in which a nerve graft is indicated.

The graft is conveniently taken from the anterior femoral cutaneous nerve. Two or three inches can be taken so that one can be assured that there is enough for the gap, some left over in case of accident, or even for use in another case. Evidence that the graft has "taken" will not be apparent for 6–14 months, judged by the movements of the facial muscles. But the surgeon may be encouraged earlier by the fact that the patient says the face feels different, there is a feeling of tightness or even of "pins and needles." He may lose his epiphora and the muscle response to galvanism becomes less sluggish.



These encouraging signs may begin to appear at about three months.

Informed opinion in this country appears to be that regeneration of nerve-cells cannot be expected after an interval of two years. I can only say that one of Dr. Tickle's cases, with a facial paralysis of twenty years' duration, a Bell's palsy, showed quite marked improvement after the graft operation. Another case of the same duration showed no improvement; but, as he says, it is obviously worth while to try, however long the paralysis. No harm will be done even if there is no improvement; but in the cases which do respond the benefit to the patient is almost inestimable—not to speak of the satisfaction of the surgeon.

Finally, it is hopeless to expect complete recovery in any but the earliest cases; so that, the sooner the operation for graft or decompression is carried out, the better the chance of recovery will be.

Patients can be taught, and readily learn, to use the unaffected side of the face only as much as the affected side will move, and a clever patient, with even only slight movement on the affected side, can disguise the fact that there is any paralysis at all, so that only in moments of extreme emotion can the disability be detected.

I am showing you two cases.

CASE 1.—Mrs. A had a complete mastoidectomy (right ear) performed by Hunter Tod fifteen years ago. She made an uninterrupted recovery and suffered only from deafness until April this year. She then complained of pain in the ear for three weeks, after which came the onset of complete facial paralysis on that side. Examination showed the presence of a large cholesteomatous mass, and the lesion was demonstrated to be in the dense bony portion of the aqueduct. The nerve was exposed, a portion about ½ in. excised, and a graft inserted. This was on *May 15th*. I wish you to notice now that the natural lines of expression at the angle of the mouth are beginning to make their reappearance; there is obvious movement of the orbicularis oris when she attempts to whistle, to show her teeth, or to smile, there is no epiphora, and there is slight faradic response in orbicularis oris and orbicularis palpebrarum. The mastoid incision is completely healed, and I can assure you that the cavity is completely epithelialised. She responds to the tests for taste correctly two out of three times.

CASE 2.—Mr. B was admitted to the London Hospital in May, 1936, suffering from left lateral sinus thrombosis which was successfully dealt with. He had a history of twenty years' otorrhœa, and left facial paralysis for a month before admission. In August I explored the aqueduct and found a mastoid cell actually involving the aqueduct, and full of pus and granulations. Above this there was a very obvious neuroma, and below the typical fibrous-looking sheath. The sheath was incised from a point about ¼ in. below the cell right up over the neuroma to healthy nerve, and a graft was inserted. It is just over two months since this was done, so no very definite result can be expected yet, but the epiphora is obviously much better and he is beginning to feel that tightness in the face to which I referred before. In the meantime he is having faradic massage and does his exercises.

These are the first two cases on which I have adopted Duel's method, and I hope that those of you who have seen them to-day will be here again next year when I hope to demonstrate the progress they have made.

SPECIAL ARTICLES

THE TRAINING OF THE SENSES *

BY R. A. YOUNG, C.B.E., M.D., B.Sc., F.R.C.P.

ONE of the greatest lessons I learnt in the wards of the Middlesex Hospital as a clinical clerk and house physician was the importance of method and routine. These were strongly impressed on me by *Sir R. Douglas Powell and Sir J. Kingston Fowler.* If we did not record our physical signs in the classical order—inspection, palpation, percussion, and auscultation—we were reproved and asked in what way our order was an improvement on that established by tradition and experience. That is the chief point I want to stress this afternoon—viz., the importance of method in investigation and concentration in considering the diagnosis and treatment. Work out your cases methodically, concentrate on each problem, and don't carry the burden of one case into the next. Do your best and don't worry. Worry does no good to your patient, and it does harm to you, both to your peace of mind and to your efficiency.

In examining the patient, except in matters of emergency, work out a routine for yourself. Medicine is alas! not an exact science, but we can try to be accurate in our observations. Errors in diagnosis are more often due to lack of or error in observation than to lack of knowledge.

Train all your senses. Don't forget that your predecessors had to rely almost entirely on their own unaided observations, and that you may be placed some time where special tests and radiological assistance are unobtainable. While I was preparing my remarks on this matter, I chanced upon a lecture of my friend Prof. John Ryle,[1] which I can commend to your attention as both informative and amusing. This has always been a favourite subject, indeed almost a hobby, of mine, and I suspect of all physicians concerned in teaching.

A long lecture could be given on the *visual aspects of disease.* Think for example of the various characteristic facies, complexions, stances, gaits, tremors, and deformities. Conditions like myxœdema, Graves's disease, congenital heart disease, and parkinsonism can be recognised almost at a distance. A keen inspection of the chest and its movements may afford most valuable hints as to the side which is involved, and reveal fibroid contractions, compensatory displacements, and deformities. Always test the direction of the flow of blood in dilated veins coursing over the chest and abdomen. I can recall the experience of a candidate, whom I had coached for a medicine examination in my younger days, being congratulated by the examiner on being the only candidate who had carried out this simple procedure and thus determined whether the deep venous obstruction was in the abdomen or the thorax.

When taking a pulse I always look at the finger-ends for clubbing, which suggests careful search for pulmonary, cardiac, and hepatic abnormalities, and at the nails for transverse ridges as indicating an illness in the previous six months. The colour of the skin may give most helpful information, as in argyrism, Addison's disease, hæmochromatosis, *pellagra, polycythæmia, and enterogenous cyanosis.* Osler's nodes have on more than one occasion saved me from the embarrassing experience of confessing my inability to diagnose a case of long-continued pyrexia. *On one occasion a* boy who had returned from a holiday camp with severe pyrexia and generalised pains drew my attention to typical rheumatic nodules in his fingers and thus established his own *diagnosis.*

Drug rashes may also be revealing. I remember that on one of my rounds, a boy of about 18 was brought into my ward in a state of coma, accompanied by a very agitated dental surgeon. He had been given a local anæsthetic for an extraction and shortly afterwards became rigid and comatose. When I saw him he was cyanosed and unconscious, but his pulse though slow was of good volume and his breathing was slow and normal. Dr. C. E. Lak[illegible]n' who was in my ward at the time, noticed an acneiform eruption on the face and the somewhat substandard development of the patient. He suggested that the rash might be a bromide acne, and the condition one of post-epileptic coma, which proved to be correct.

The *sense of touch* is one which we should all develop to the utmost. Palpation often gives more information in conditions of pleural disease than any other examination, by establishing the position of the cardiac impulse and the presence or absence of vocal fremitus. My present clinical clerks will recall the interesting fremitus we noticed in a case at present in the [illegible] with a localised basal effusion, probably [illegible] endothelioma of the pleura. On tapping lightly [illegible] the base with the plessor finger and feeling [illegible] with the palm of the hand, we noticed a peculiar tremulous fremitus which reminded me of [illegible]n "hydatid thrill." It was of great interest to [illegible]t this sign described in THE LANCET by Dr. [illegible] Pitfield [2] of Philadelphia a few days later as a co[illegible] sign of fluid in serous cavities.

In percussion, the sense of resistance is oft[illegible] informative as the note obtained. A routine [illegible]tion in the *supraclavicular fossæ may reveal seco*[illegible] enlargement of glands in obscure conditions [illegible] thorax or abdomen, and a similar palpation [illegible] skin elsewhere may reveal the swellings of Re[illegible]hausen's disease, which is often missed in its [illegible] stages. Abdominal palpation is admittedly di[illegible] but with experience a high degree of accur[illegible] interpretation is often acquired. I have admired the ability of my surgical colleagues in difficult problems of this kind. In this connexion I have a very pleasant recollection of three meetings with Chevalier Jackson during his visit to this country a few years ago. His extraordinary skill in developing the use of the bronchoscope is universally recognised. His account of his experiments in his leisure moments to devise special apparatus and to become expert in their use was enthralling, and a fine example of the art and craft of medicine and surgery.

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* Part of a farewell clinical lecture, entitled Odds & Ends, delivered at the Middlesex Hospital on Nov. 6th.

[1] The Natural History of Disease. By John A. Ryle. London, 1936, p. 24

[2] THE LANCET, Oct. 24th, 1936, p. 983.

The *sense of hearing* gives information in far more ways than in the use of the stethoscope. The stridor of laryngeal or tracheal obstruction as opposed to the long-drawn expiration with sibilant rhonchi in asthma and other forms of small tube bronchial obstruction, may be quoted as examples. The brassy cough of tracheal or main bronchial obstruction is unforgettable. I recall an afternoon when I went down after a ward round to the out-patient department to see a case sent up for my opinion. It was a middle-aged man with a history of cough and expectoration. There were very few signs except those of a markedly emphysematous chest and a few rhonchi. By good fortune, just as I was about to make a conventional diagnosis of winter cough and emphysema, he gave a typical harsh clanging cough. An X ray examination at once revealed a large aneurysm from which he died in hospital within a week. A similar cough nowadays makes us think more of a malignant disease of a bronchus or of other causes of mediastinal pressure, but aneurysm should always be considered. Many other varieties of cough could be instanced as typical and helpful in diagnosis, such as those of whooping-cough, of laryngeal disease, and of pleural irritation.

Many examples might be adduced of the information given by the *sense of smell*. I recall a typical case of renal rickets which was brought to me because of the urinous odour of the boy's breath. The smell of the bedclothes or of the patient's underwear may tell you of incontinence, which might not otherwise come to your notice. Sir William Osler noted the characteristic smell of some cases of typhoid fever and quoted Nathan Smith's description of it as a "semi-cadaverous musty" odour, which I regard as a masterpiece of description. The "odor phthisicus," though not common, is I think generally of evil omen. The smell of acetone in the breath and the peculiarly unpleasant smell in bad cases of pyorrhœa alveolaris are matters of common observation.

The *sense of taste* comes less into use than the others in our work. It is, however, worth while sometimes to taste the medicines ordered. In the past I have found that my attempts to inculcate this on my clerks has been more appreciated by the onlookers than by the object of the test.

It has been of great interest to me to watch the development and the increasing importance of special [illegible] in diagnosis. It must be difficult for some of [illegible] to conceive of medicine without radiology or think of diagnosis without the help of the clinical laboratory. Hæmatology, cytology, bacteriology, and chemistry now give us priceless help in our work. Physiology is nowadays justifying its old name of [illegible] "Institutes of Medicine." In this development our own Prof. Samson Wright has played no inconspicuous part, as the popularity of his well-known text-book testifies. I yield to no one in my appreciation of the help I receive from all these special methods, and I appeal to them whenever it is possible. Remember, however, that in private practice it will be necessary for you to be eclectic, if only on grounds of economy. You may have to do without them altogether, so this should be a stimulus to you to observe as much as you possibly can without them and not to rely entirely upon them for your diagnosis. I like to make a tentative diagnosis on my own observations, and then to confirm, modify, or discard it by these special aids. In a difficult and prolonged case don't hesitate to reconsider your diagnosis, even when you are convinced you are correct. Fit your theory to the facts and don't distort your facts to suit your theory.

MIGRATION INTO AND OUT OF LONDON

THE post-war period has been signalised by extensive movements of population within this country. From the industrial regions in the north and from Wales the efflux has been most pronounced. So far this process of emigration has not caused an actual decline of population in the whole northern region,[1] as reflected in the estimated populations for 1925 and 1934. In this ten-year period there was, in fact, a slight increase of just under 69,000 in a region the total population of which exceeds 13 millions. Within this area a marked decline has occurred in the counties of Durham and Cumberland and a slight fall in Northumberland. In Wales and Monmouth, on the other hand, there has been in these ten years a decline of population amounting to more than 180,000 persons, mostly in the industrial counties of Glamorgan and Monmouth. Appreciation of what this means to Wales in terms of migration can be reached by adding to this figure the excess of births over deaths during the same period, approximately 127,000, which would have constituted the natural increase. Clearly communities which had planned their services on the assumption that the previous rate of growth would, if not be maintained, at least be affected mainly by the declining birth-rate, are hereby faced with serious administrative problems. But this is perhaps the least important result of the large-scale drift of population, for observers in the distressed areas draw attention to the fact that it is the best of the young people, physically, intellectually, and morally, who are leaving; and that these communities are, in consequence, becoming progressively less capable of helping themselves to find a way out of their misfortunes. This movement is partly to the prosperous midlands, but mainly toward London. It may therefore come as a surprise to those who have not studied the figures to find that the population of the administrative county of London is not increasing. The reverse is the case. For nearly forty years a falling birth-rate and emigration have combined to reduce steadily the population within the area administered by the L.C.C.

The effect of migration on London's population is dealt with in an illuminating contribution by Mr. C. A. Gould, B.Sc., to Sir Frederick Menzies's latest annual report.[2] Mr. Gould has attempted to trace London's inward and outward migration by two methods:—

(a) Since 1841, by comparing the expected number of survivors of a given age-group in the life table for each concern to the health department, though not necessarily provided by it, were bedside nursing care, medical, dental, and hospital services. Control of disease was possible only when adequate treatment for that disease is available, and wherever such treatment cannot now be obtained the health department cannot escape responsibility for the lack. The speaker referred to the coöperation in the control of pneumonia between the medical profession and the New York State department of health, also to the pioneer work in cancer control carried on in Massachusetts. He did not advocate standardisation of health administration. Indeed it is obvious enough that in this expanding conception of the province of public health no immediate delimitation of its responsibilities is possible.

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[1] This region is defined by the Registrar-General as including Cheshire, Lancashire, Yorkshire, Durham, Northumberland, Cumberland, and Westmorland.

[2] London County Council: Annual Report of the Council, 1935. Vol. III. (Part I.): Public Health. London: P. S. King and Son. 1s.

A scholarly foundation to the newer claims of preventive medicine was laid in an address by Prof. Henry E. Sigerist of the department of medical history in Johns Hopkins University. Tracing the development of the concept of prevention through the peaks and depressions of medical history he showed how for the first time medical science has become the servant of the people as a whole rather than of any favoured class, and how the organisation of its resources is essential to the present task. The demand for better housing was echoed by Prof. C. E. A. Winslow of Yale, who described housing conditions among the poor of this country as worse than those among similar classes of any leading Western European country. The six million low cost houses that we need cannot be supplied by commercial enterprise as the affected families have incomes too low to pay an economic rent for housing of a minimum standard of health or decency. The claims of mental hygiene presented at the last meeting were reiterated this year. The health commissioner of New York State put in a claim for the consideration of accidents as a public health problem on the ground that so important a cause of death cannot be ignored by organised preventive medicine.

The dignity of the Association was protected by two important resolutions made by its governing council. The first of these was directed against the commercial competition of cities seeking the advantage of playing host to the annual conventions. It was determined to partition the United States into nine geographic areas. Each year the governing council will select two areas from one of which the convention city for two years hence will be subsequently selected by recommendation of the committee on meetings and publications. The other action concerned the commercial exhibits which have in recent years given rise in certain cases to severe and justifiable criticism. In future years the application of accepted standards of commercial probity will assure freedom from abuses.

The Sedgwick memorial medal, awarded annually for distinguished service in public health, was presented this year to Dr. Frederick F. Russell of the Harvard Medical School. The new president-elect of the Association is Dr. Arthur T. McCormack, health commissioner of the State of Kentucky. The health officers section chose as its new president Dr. Huntington Williams of Baltimore, and as vice-president Dr. George F. Amyot of Vancouver.

PANEL AND CONTRACT PRACTICE

Surgery Visitation

CHESHIRE insurance committee is concerned about surgery accommodation and has sent a deputation to the Ministry of Health to develop the committee's opinion that it is its duty and responsibility to ascertain whether insurance doctors are observing the requirement in the terms of service that they should provide proper and sufficient surgery and waiting-room accommodation for their insured patients. The deputation reported that the Minister's view is that until the contrary is proved it must be assumed, in the absence of a specific or general complaint, that the practitioner is complying with his terms of service and is providing the accommodation. There is nothing in the regulations to compel a practitioner to answer any inquiry by the committee about his accommodation and, further, insurance committees have no right of entry for the purpose of inspecting surgeries and waiting-rooms of doctors. An insurance committee, however, is entitled to proceed on a specific complaint by an insured person that he has suffered inconvenience or personal discomfort owing to inadequacy of accommodation or has not received that privacy in the treatment of his case that he considers he was entitled to. Further, the committee is entitled to investigate any general complaint relating to the accommodation of an insurance practitioner whether raised by an insured person, a member of the committee, or the clerk of the committee. After some discussion, in the course of which an approved society representative said that during the twenty-three years he had been secretary of a society he had not received a single complaint about surgery accommodation from his members, it was decided to invite the panel committee to appoint five representatives to meet five members of the insurance committee to examine the position. It will be recalled that there are already some areas in which panel and insurance committees coöperate in the visitation of surgeries. In such areas it has been proved that a timely word may prevent a practitioner from laying himself open to criticism.

Emergency Night-calls

The seventeenth annual report of the Ministry of Health includes summaries of cases of interest which have been the subject of appeal during the past year. One of these is unusual in that it does not relate to an alleged failure to provide treatment or to comply with the medical certification rules. An insurance committee's allocation scheme included a provision empowering the allocation committee to exempt a practitioner, with or without his application, from emergency night-calls to insured persons on the lists of other practitioners, when the practitioner resided more than two miles by road from his surgery and had no deputy, partner, or assistant residing at the surgery. This was to be subject to a right of appeal by the practitioner to the Minister against an enforced exemption. The distribution scheme included a provision providing, in effect, for the reduction of the exempted practitioner's remuneration by 5 per cent. Two practitioners appealed against decisions of the allocation committee exempting them from emergency night-calls against their will.

Both practitioners lived more than two miles by road from their surgeries, and neither had any resident de partner, or assistant at his surgery, the surgery o practitioner being outside (though on the border o insurance committee's area and his residence withi area, and the residence of the other practitioner o and his surgery within, but both claimed that ther a quick and efficient service for insured patients at all times owing to the presence of caretakers at the surgeries, the provision of telephone communication between the residences and the surgeries, and the practitioners' possession and use of motor-cars.

The practitioner whose surgery was outside the committee's area claimed that there had been no doctor in residence at the surgery for fifteen years, and that the insurance service had not suffered on that account. He admitted, however, that he did not receive patients at his residence, and that he had received no emergency night-calls to other practitioners' patients for the last nine years.

The practitioner whose residence was outside the committee's area claimed that the committee had given him permission to reside outside, subject to the already mentioned provision of communication between residence and surgery for the purpose of maintaining the efficiency of his service. This permission had, however, been given prior to the inclusion of the relevant provision in the allocation scheme, and the practitioner was unable to show that he was giving emergency treatment to patients on other practitioners' lists to any material extent.

In both cases it was held that the enforced application of the exemption from emergency night-calls to other practitioners' patients was justified, there being no sufficient evidence to dispel the presumption that the practitioner's residence so far from his surgery diminished the liability to emergency calls at night.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index.

FROM A DOCTOR IN RETIREMENT

II

It is always of interest to observe in what way a busy man occupies his spare time. Usually it is the man who works hardest and works the longest hours who contrives to find time to do other things as a relaxation and hobby during the odd hours which he has to himself. It is only the lazy, the dull, or the stupid man who can find nothing of interest to do in his leisure. Once the necessity for occupying his mind on his one employment is gone, his mind sags and he becomes a burden both to himself and to his family and a bore to his friends.

* * *

No professional man works longer hours or works harder to earn his living than the country doctor, and yet, I maintain, more country doctors occupy their leisure in interesting occupations than do the members of any other profession. I think I perceive the reasons for this. First of all, the very nature of his work requires the country doctor to spend much of his spare time at home, for even when he has no actual work to do—patients to see, books to keep—he still must be at home or near at hand in case of a sudden urgent call. This perpetual threat of interference with his private life is never absent; never day or night can he be free of the possible fear that his services may be required. Therefore his hobby must be one which he can carry on at home or quite near home. Consequently a great many country doctors—"the backbone of the profession" as the tactful and diplomatic consultants style them at medical gatherings—take up gardening. And very good gardeners they make. Most country doctors have "green fingers," as the saying is, and can make a plant grow and thrive which would wilt and wither in other hands which are not "green fingered," lacking that mysterious sympathetic touch which all successful gardeners possess. A garden gives the country doctor just that form of relaxation and mental occupation which he requires. There is exercise in it, but not too violent; it keeps him in the open air, for each season has its own particular problems and tasks. What are the rewards for gardening? Health, a happy contented mind, and a pleasant sensation of successful achievement, a lovely garden to surround his home, and lovely flowers to adorn his house, and incidentally, an absorbing subject to discuss with his patients and so distract them from long wearisome recitations about their minor symptoms.

This hobby of gardening is a particularly happy choice for a member of our profession for when the time comes and he will be able to relinquish his practice and go into retirement he will already have to hand a pleasant occupation to pass his time both usefully and happily. Many professional and business men—though not generally doctors—go airily into retirement under the false belief that from then onwards life will be one long jolly holiday; the doctors anticipate a period of ease, with no patients to bother about, no slumber-shattering telephone, no tiresome panel committee, no coroner's inquests; and yet how few meet this important climacteric prepared for the change; most enter it without any definite plan before them as to how they will employ their whole-time leisure? But the gardening doctor has already provided himself with the solution for happy retirement. The only change for him will be that henceforward he will be able to spend whole days at his favourite pursuit when previously he could snatch only an occasional hour which at any moment was liable to be filched from him.

* * *

Therefore I say to you country doctors who contemplate retirement, do not bother too much where you will live, granted of course that it will be in the country, but see that your house has a garden. As big a garden as you can afford the money and the time to keep up, but do not be tempted to go beyond your resources. A small garden well tended is far better than a large one you cannot take proper care of. Never mind if your new garden is in a state of chaos, if nettles, brambles, and docks run rampant. So much the better, for it is far more fun to make a garden where no garden was before, than to become possessor of a spick-and-span one, made by someone else—one in which there is little for you to do but carry on with what was designed and planted by your predecessor.

* * *

These reflections about the why and the wherefore of country doctors and their gardens suggest that the connexion between doctors and gardens goes back a very long way. From the Middle Ages onwards a doctor had to be something of a gardener as well as a botanist, for his garden was to a large extent what his wholesale druggist is to-day. In his garden he grew those herbs and various medicinal plants with which he concocted his simples or dispensed those alarming indiscriminate prescriptions so in favour with the Elizabethan physician and apothecary. It always gives me a slight feeling of sadness when I walk down that drab and dreary City street Fetter-lane to recall that here stood the famous garden of the author of the greatest of all English herbals John Gerard (1545–1612). There he grew over one thousand different herbs as well as many "rarities," ranging from white thyme to the double-flowered peach. His house was only a short walk away in the village of Holborn, and Gerard tells in his "Herball" how in Gray's Inn Lane he gathered mallow, shepherd's purse, sweet woodruff, bugle; and Paul's coloured rocket, yarrow, lesser hawkweed, and the curious strawberry-headed trefoil; while on the walls of the houses flourished golden stone crop and wallflowers. Gerard must have been a busy man, for besides running a large and fashionable practice, he found time to write his huge herbal, tend his garden in Fetter-lane, superintend the gardens belonging to Lord Burleigh in the Strand and at Theobalds in Hertfordshire, and act as an examiner of candidates for the admission to the freedom of the Barber-Surgeons' Company. How fortunate it is that old John Gerard never saw or never dreamed of the horror which now covers his fair garden.

PUBLIC HEALTH

Bacteriological Tests for Graded Milk

A MEMORANDUM[1] just issued by the Ministry of Health sets out the procedure to be adopted under the Milk (Special Designation) Order, 1936, for the collection of samples, their transport and storage, and the laboratory technique of the various tests. The memorandum leaves nothing to chance manipulation or to varying practice, for every procedure is set out in minute detail. This applies to sampling and transmission of samples just as much as to laboratory tests. The different laboratory methods described are for the methylene-blue test, the coliform test, and the plate-count test, this last being still required for tuberculin-tested milk (pasteurised) and for pasteurised milk.

The methylene-blue test in its old form has been shown to be very unreliable, but the present modified test is advanced as a great improvement and capable of yielding results in actual practical working superior to other procedures. To yield these results it has to be carried out with precision and under closely specified conditions. These include the use of standard methylene-blue tablets, a reliable water-bath with dark interior and capable of regulation between 37° C. and 38° C., special precautions as regards glassware and the usage of pipettes, detailed instructions as to mixing the milk and adding the methylene-blue, and in particular regular inversion and mixing of the contents. It is obvious that the reliability of this test for the particular purposes indicated will largely depend upon attention to these minute directions and all bacteriologists should take pains only to perform the test under the conditions presented. Only with tests so performed will it be justifiable to criticise its utility. Another feature of the test as now applied, which was often neglected in the old test, is the rigid sterility under which it is to be performed.

Assuming its reliability under these controlled conditions, the methylene-blue test will still be subject to several limitations. In the first place it is essential to inspect and invert the tubes at half-hourly intervals and, particularly in small laboratories, this is not very convenient. A more serious objection is one voiced by Mrs. L. A. Foot in a letter in our issue of Nov. 7th—namely, that the test is positive or negative but no more than this. It gives no indication of the degree of success or failure so that the producer may, by definite quantitative data, be encouraged with success or stimulated by failure. This is a genuine criticism which can hardly be met, since it is inherent in the test.

The coliform test has been retained and its inclusion is received with mixed feelings by bacteriologists. On the one hand they welcome the retention of a test which is definitely useful, but on the other it has to be remembered that one primary advantage of the methylene-blue test was the saving in glassware and the time of its cleaning and sterilisation and the absence of the cumbersome dilution of the milk necessary for bacterial enumerations. With the retention of the coliform test some of this extra work is still necessary. The position is somewhat simplified by the suggestion of the Ministry that it is not necessary that every sample should be submitted to both tests, and it is probable that such a procedure will be widely followed.

It is still too early to decide whether the modified methylene-blue test will in practice give what it aims to give, a reliable index showing whether the necessary cleanliness in milk production and care of the milk subsequently is being practised. Tests such as the addition of a little manure to milk and comparison of results with those of the coliform test are not really satisfactory. Its utility can only be truly assessed by very careful comparisons between inspection reports and laboratory findings, and it is to be hoped that the test will be subjected to this scrutiny.

Fumes in a Printing Works

Last week eight workpeople—six women and two men—were taken ill at a printing works in Birmingham with the suspicion of fume poisoning. It seems that a girl was first affected; she fainted at her work, and when another girl went to help her she was also overcome with an attack of crying and laughing. Next, a boy working at a printing machine became sick and fainted. Of the eight persons removed to hospital one was detained for the night; five were able to resume their work in the morning. The symptoms are ascribed to inhalation of carbon monoxide from the burner of a stereo-apparatus to which access of air was insufficient for complete combustion. It seems that work was being done that day with closed windows and the trouble did not begin for three hours when the concentration of carbon monoxide must have become considerable. Attention to ventilation and to the state of the burners should prevent any recurrence of such an accident. The question whether a stove of this kind should be installed without a flue is for the factory department to answer.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 31ST, 1936

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0; scarlet fever, 2295; diphtheria, 1250; enteric fever, 18; pneumonia (primary or influenzal), 813; pue

(*Continued at foot of opposite page*)

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[1] Memo. 139/Foods. London: H.M. Stationery Office. 3*d.*

CORRESPONDENCE

CHRONIC ULCERATIVE COLITIS

To the Editor of THE LANCET

SIR,—Your annotation last week on chronic ulcerative colitis shows that, in common with those who took part in the discussion at the Royal Society of Medicine, you are not inclined to support Bargen's claim as to the rôle of the diplostreptococcus in the ætiology of the disease. You state, furthermore, that his results from treatment with specific sera and vaccines have not been confirmed by others.

I think that the reason clinicians in this country have not been able to obtain the good results reported by Bargen is that they have never given his method a fair and proper trial, but have been content to fall back on bacteriological platitudes such as the statement that the Bargen organism can be isolated from the bowel of healthy persons. I was fortunate in being on the staff of the Mayo Clinic when Dr. Bargen was carrying out his early investigative work, and had the opportunity to observe personally the tremendous improvement in the outlook in these cases after the introduction of treatment by specific vaccines. In this country my first chance of trying the method came in 1927.

The patient, a young man of 26, had suffered from very severe ulcerative colitis for over three years. He had spent about 20 months as an in-patient in two well-known institutions which specialised in colon disorders but without any improvement, though he received slight temporary benefit from protein shock injections. After the fourth injection of a vaccine of the Bargen diplostreptococcus his motions, which varied from 8 to 30 in the 24 hours and contained blood and mucus, were reduced to 3 or 4, and by the end of a month he was perfectly well, passing one or occasionally two motions in the 24 hours, and the motions were solid for the first time for over three years. Except for a slight remission a year later which responded promptly to vaccine treatment, this patient has remained completely well since, and has been constantly at his work.

During the last nine years I have treated in the Victoria Infirmary, Glasgow, over 30 cases of ulcerative colitis with a vaccine prepared from the Bargen organism. The results have been most encouraging. The only auxiliary measures employed have been a full diet, ferri et ammon. cit., and occasionally a bismuth preparation. Not all patients have responded equally well. Older patients were more refractory and were more liable to remissions. Again, those patients in whom the diplostreptococcus could not be isolated and who had to be treated with a stock vaccine did not do so well on the whole as those in whom the organism was isolated from the floor of the ulcers. Remissions have not been uncommon, but they have all responded to further vaccine treatment. I can recall only 3 cases which appeared refractory to treatment. I have never employed any form of local application to the colon, nor has operation been necessary in any case. There has been only one death and this occurred in a fulminant case, in which the patient died 48 hours after admission to hospital before treatment could be instituted. I do not think I have been able to improve my results in recent years by the use of the stock serum which is on the market, and I have had no facilities for the preparation of a serum from the strains of the organism isolated from patients under my care.

My personal belief is that in most cases of chronic ulcerative colitis there is an allergic basis, and that the Bargen diplostreptococcus is the chief of the secondary invaders. I am not concerned with abstract discussion as to whether the vaccine acts specifically or by some form of protein shock. That after all is only part of the larger problem of the mode of action of vaccines in general. The important point I wish to emphasise is that in vaccine therapy we have a most useful therapeutic measure for the control of chronic ulcerative colitis and one which is worthy of an extensive trial. If good results can be obtained at the Mayo Clinic and also in Scotland, there seems no valid reason why they should not be obtainable further south. It would appear, however, that in the south the attitude towards ulcerative colitis is still too "tropical," and that antidysenteric sera, Yatren, colon lavage, and operation still occupy too prominent a place in treatment.

And lastly, it is not conceivable that at the Mayo Clinic a form of treatment would be persisted in for over twelve years if it had not proved to be the most effective measure at present available for the control of the disease.

I am, Sir, yours faithfully,

Glasgow, Nov. 9th. ROBERT MAILER.

INJECTION TREATMENT OF HERNIA

To the Editor of THE LANCET

SIR,—I have read with interest the annotation on this subject in your last issue. I can never understand why this method of treating hernia has not found favour in this country. In the United States, where it has long been on trial, the reports are very favourable. Some American surgeons in their reports give results which are as good or even better than those of operation. At the same time I would like to urge that injection should not replace operation unless there is good reason. The method is particularly appropriate for cases which would be bad surgical risks and could be treated alternatively by injection or for patients who refuse operative interference.

As regards the solutions employed for injections, the Americans use many. Unfortunately it is very difficult to get these solutions made in this country, owing to our pharmacopœia being different. I have, therefore, used in my practice a twin or double

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(*Continued from previous page*)

peral fever, 46; puerperal pyrexia, 127; cerebrospinal fever, 11; acute poliomyelitis, 10; encephalitis lethargica, 8; continued fever, 1 (Preston); dysentery, 22; ophthalmia neonatorum, 80. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Nov. 6th was 3057, which included: Scarlet fever, 1152; diphtheria, 906; measles, 28; whooping-cough, 331; puerperal fever, 15 mothers (plus 8 babies); encephalitis lethargica, 285; poliomyelitis, 3. At St. Margaret's Hospital there were 11 babies (plus 6 mothers) with ophthalmia neonatorum.

Deaths.—In 122 great towns, including London, there was no death from small-pox, 1 (0) from enteric fever, 5 (0) from measles, 2 (1) from scarlet fever, 12 (6) from whooping-cough, 45 (6) from diphtheria, 60 (14) from diarrhœa and enteritis under two years, and 36 (10) from influenza. The figures in parentheses are those for London itself.

Exeter reported the only fatal case of enteric fever. Bristol had 3 deaths from whooping-cough. Fatal cases of diphtheria were reported from 25 great towns: Liverpool 6, Luton, Birmingham, and Bristol each 3.

The number of stillbirths notified during the week was 259 (corresponding to a rate of 42 per 1000 total births), including 43 in London.

solution. This consists of equal parts of (*a*) quinine-urethane and (*b*) lithocaine (lithium salicylate + tutocaine). These two solutions when they come in contact with each other form a heavy precipitate, and when injected into the hernial canal the mixture remains localised and sets up an aseptic inflammation, the end-result being fibrosis.

I notice also that some advocates of this method of treating hernia advise starting the injections lower than in the inguinal canal, close to the external ring, and then injecting higher up towards the internal ring on each successive injection. I am not in favour of this plan, since in my opinion it is much easier to start high up in the inguinal canal and carry on the injections lower down the canal towards the external ring. I am, Sir, yours faithfully,

Wimpole-street, W., Nov. 10th. MAURICE LEE.

COMMUNAL RESTAURANTS

To the Editor of THE LANCET

SIR,—The subject of nutrition has been much discussed in your journal during the current year; is it not desirable that there should be some practical application of the knowledge? I believe the only way in which changes can be made in the deficiences of diet which exist to-day, on a scale that might eventually reach all the people, is by communal restaurants for each group of houses or flats.

This is especially important in housing estates for the working class, because one woman cannot perform the task of tending a family, cleaning, sewing, feeding, and so forth, and also, with expert knowledge of food values, buy wisely, and cook so as not to spoil the foods. Moreover, if she were capable of doing all these things, under present conditions she could not overcome the difficulties of buying cheaply in a fresh market. Only a direct and skilled link between agricultural units and feeding centres, with a trained dietitian and cook at each centre, could provide what is needed at prices within the possibility of working-class families.

If for each 10 or 12 dwellings there were attached a laundry, a creche, and a restaurant with 10 or 12 family tables or alcoves, a free choice of menus planned with expert knowledge might be given, and the children would be catered for at a convenient hour, with food suitable to their age and need. A snack bar running in the evening would enable young people to entertain their friends in the vicinity of home. The head of such a centre would collaborate with the nearest agricultural unit to secure the necessary production and direct delivery of fresh dairy produce, vegetables, fruit, and meat.

Scattered gifts of milk or even meals to mothers and children, helpful as they are, are not enough. The dietary of the whole nation needs to be put on a sound basis, which would meet the needs of all ages, while retaining the best facilities for family life.

I am, Sir, yours faithfully,
FLORENCE E. BARRETT.

Devonshire-place, W., Nov. 5th.

"THE ÆTIOLOGY OF ACUTE RHEUMATISM"

To the Editor of THE LANCET

SIR,—I hope, though I fear in vain, that "Streptococcus pyogenes" will not be accepted by the medical profession as the name for a cause of acute rheumatism if this disease is streptococcal. Naturally I believe it is a streptococcal disease, but even the old term, which will no doubt raise a smile, "Diplococcus rheumaticus," was more accurate and helpful. Perhaps I am a pessimist, but it seems to me modern medicine, excepting the attempts upon new lines such as the virus, only makes the problems more difficult by diffuse and confusing nomenclatures, and to add "Streptococcus pyogenes" as the term for a possible cause of a disease generally accepted as non-suppurative and very special in its clinical features is to increase the chaos.

I should be interested to hear the opinions of others who have recently worked at this problem on broad lines—i.e., both clinical and pathological—upon this question of "Streptococcus pyogenes." Time has been my master, but fifteen years of steady research, even if now out of date, is I believe sufficient excuse for this letter. I am, Sir, yours faithfully,

Bath, Nov. 9th. F. JOHN POYNTON.

ARTIFICIAL PNEUMOTHORAX

To the Editor of THE LANCET

SIR,—I am sorry to note that in your issue of Nov. 7th Dr. F. A. H. Simmonds, writing about my recent report on artificial pneumothorax, states that whilst the work gives "a picture of the value of pneumothorax treatment in attacking the whole problem of tuberculosis in London" it does not provide "help for the clinician faced with a patient apparently suitable for the treatment, who would wish to know results in similar cases."

It is true that my findings will not foretell with certainty the fate of any individual patient who is to be treated by the method, but it is thought that the clinician will get some guidance in a general way from a study of the report. Thus he will learn that in positive sputum patients who underwent complete collapse and became sputum negative on discharge from residential treatment no less than 90 per cent. of the subjects were alive after three years. He will learn that, with complete collapse cases in general, 66 per cent. of the patients were alive after three years and that, when the disease was strictly unilateral, the percentage survival rose to 77. Again the results show that, in incomplete collapse cases, only 50 per cent. of the patients survived three years. Many other indications were also given as to the value of the method in various types of case. It is because the results were found to vary so markedly in the different groups that it was thought wise to emphasise that the original choice of case must be made with the utmost care.—I am, Sir, yours faithfully,

London, Nov. 6th. F. J. BENTLEY.

THE ROYAL COLLEGE OF SURGEONS AND ITS MEMBERS

To the Editor of THE LANCET

SIR,—Once again at the annual meeting of the Royal College of Surgeons to be held on Nov. 19th, amongst other matters of interest, the question of representation of some members on its council will be discussed. It is now 90 years since the charter was obtained conferring the entire control of the College on the fellows, then specially created, to the entire exclusion of the members, who formed the original electorate of the College. From that time till now a continuous and vigorous protest has been made year by year by the members. For nearly half a century at every annual meeting of the College a resolution of protest and a request for some representation on its council has been carried by a large majority of the fellows and members.

Within the past few years a questionnaire to members showed an overwhelming majority of those circularised favourable to this resolution. It must surely be a unique experience that so persistent, moderate, and reasonable a request, made by three successive generations of members, and supported by some of the most eminent of its fellows, and at least by two of its presidents, should still remain ignored by the Council. The late Lord Moynihan was a supporter of this claim, and on the council during his presidency a very large number of the council, though not a majority, were believed to be favourable. Recently questions associated with the medical curriculum—osteopathy, chiropody, diplomas in dietetics, &c.—were before the council, but no member in general practice with first-hand knowledge of the problems was present to assist the council and represent the views of the general body of members.

The relations of the council and fellows vis-a-vis the members is now a happy and friendly one, and the moment eminently suitable for settling this long-standing grievance with advantage to the College and its fellows and members, and to the profession—and indeed to the public at large.

I am, Sir, yours faithfully,
Eccleston-square, S.W., Nov. 9th. REDMOND ROCHE.

RADIOGRAPHY OF THE HANDS IN CHRONIC RHEUMATIC DISEASES

To the Editor of THE LANCET

SIR,—In commenting on our paper in your issue of Oct. 17th, Dr. Gilbert Scott expresses doubt about the existence of erosion at articular margins in early cases of rheumatoid arthritis. We must confess that we felt surprise at the frequency with which we observed this in spite of its omission from his comprehensive book on this subject.

While reproductions of radiograms may fail to show up very clearly the fine trabecular outline resulting from erosion of the compact bone, the description we gave in the text should prevent confusion with variations in shape and form that may be found in the normal hand. We would like to point out that although the series of cases which we published numbered only 154, in actual fact we radiographed the hands in well over 500 cases. We limited the number of cases published to those in which biochemical investigations had been performed in an attempt to correlate the clinical and biochemical findings with the radiograms of the hands.

We are, Sir, yours faithfully,
G. R. P. ALDRED-BROWN,
Bath, Nov. 9th. G. D. STEVEN.

ANÆMIAS OF PERNICIOUS TYPE

To the Editor of THE LANCET

SIR,—From the paper by Drs. Elman and Marshall in your last issue (p. 1094) two interesting points emerge. First, any form of leukæmia (leucosis) may run a permanently or temporarily aleukæmic course. There is no longer any justification for Pinkus's statement that the aleukæmic form is usually lymphatic in type. Secondly, it is quite possible that the nature of the malady would have been recognised in the early stages if the differential leucocyte count had included the evaluation of the Arneth count instead of referring to all the neutrophile cells as polymorphs.

Enumeration of the lobes of the neutrophile cells always shows that some of them are excessively lobulated in cases of pernicious anæmia, and others are unusually simple in nuclear configuration. In other words, in pernicious anæmia, there are shifts both to the right and to the left. As a general rule, in cases of aleukæmic myeloid leukæmia (aleukæmic myelosis), the neutrophiles show a distinct shift to the left. So that, although there may be no myelocytes present, metamyelocytes of various degrees of maturity may be found. In the absence of evidence of infection, such a blood picture is extremely suggestive of aleukæmic myelosis.

It is usually stated that the early stages of the leukæmias have not been recognised, and the explanation of this may be that they have not been looked for by a method capable of revealing them.

I am, Sir, yours faithfully,
Park-square West, N.W., Nov. 6th. A. PINEY.

"IDIOPATHIC" EPILEPSY

To the Editor of THE LANCET

SIR,—In your leading article of Nov. 7th referring to Dr. Bateman's record of brain changes in 176 cases of epilepsy I do not see any reference to the cerebellum. Although no macroscopic lesion can usually be detected excepting at times small areas of sclerosis—which, by the way, are easily missed if the operator wears gloves—an almost constant microscopic lesion in epilepsy is a marked atrophic and fuchsinophil change in the molecular (synaptic) layer of the cerebellar cortex. This is of a patchy nature and somewhat similar changes are met with in cases of manic-depressive insanity, though these are of a lesser degree, more peripheral and more constantly associated with a marginal gliosis. These cerebellar changes in epilepsy and manic-depressive states mainly affect the dendritic or synaptic layer in contradistinction to those met with in dementia præcox, which are essentially nuclear.

I am, Sir, yours faithfully,
B. H. SHAW,
Medical Superintendent, County Mental Hospital, Stafford.
Nov. 7th.

VOLUNTARY HOSPITALS AND THE NEW ACT

To the Editor of THE LANCET

SIR,—As the introducer of the Bill which as amended became the Voluntary Hospitals (Paying Patients) Act, 1936, I have read with interest your annotation of Oct. 31st in which you quote Section 2 (2) of the Act.

> The committee of management may charge such patients as aforesaid for accommodation and maintenance (including such medical and surgical attendance and treatment as is given by the resident staff of the hospital) in accordance with such scale of charges as may be specified in an order.

It is not possible for a layman to say how an Act of Parliament will be interpreted. But the intention of the words in brackets was, not to provide that fees should be payable to the resident staff, but to make it clear that the control by the Charity Commissioners over the scale of charges would not extend to fees paid by the patient to the visiting staff but only to charges made by the hospital for accommodation and maintenance, including any services rendered by the resident staff.

Your original summary of the section would be consistent with this interpretation.

I am, Sir, yours faithfully,
Portman-square, W. Nov. 10th. LUKE.

To the Editor of THE LANCET

SIR,—Your annotation (Oct. 31st, p. 1051) and Mr. Bedwell's reply (Nov. 7th p. 1123) tempt me to ask whether the time is not now ripe to establish a London Hospitals Board with plenary powers to enforce a more friendly collaboration between council and non-aided hospitals.

Mr. Bedwell's analogy of Church and Council schools seems to be a perfectly fair one. Why should the

State be willing to subsidise the medical schools and indeed all the colleges of the University of London for advancing education, and yet be reluctant to make obligatory instead of optional, the raising of a local rate for what, in the opinion of many, is the far more important task of improving the health of the nation? It would be easy to elaborate the idea and to make constructive proposals, but I must not take up any more of your space.

I am, Sir, yours faithfully,

The Athenæum, Nov. 10th. A. D. POWER.

VITAMIN-C DEFICIENCY IN ADDISON'S DISEASE

To the Editor of THE LANCET

SIR,—Dr. H. E. Archer estimated the vitamin-C excretion and storage in a woman with Addison's disease who was under my care early this year. The results were different from those reported by J. F. Wilkinson and C. A. Ashford in your issue of Oct. 24th, and it would appear that vitamin-C deficiency is *not a cardinal symptom of Addison's* disease and that it is not intimately associated with the pigmentation. The patient was a woman of 43 with asthenia, nausea, and vomiting, cutaneous and mucosal pigmentation, average blood pressure 90/60, highest blood-urea 90 mg. per 100 c.cm., lowest serum sodium 315 mg. per 100 c.cm. She made little improvement on treatment with sodium chloride but responded well to Cortin injections. The estimations of her ascorbic acid excretion were made a few days after admission to hospital, the ascorbic acid being given by mouth:—

ASCORBIC ACID

Date.	Intake. (mg.)	Urinary output. (mg.)
Feb. 21	0	11·39
„ 24	0	11·8
„ 25	1000	326·0
„ 26	1000	532·0
„ 27	1000	776·0
„ 28	100	201·0
„ 29	100	Not estimated.
Mar. 1	100	Not estimated.
„ 2	100	67·5

In this patient, therefore, storage and excretion of vitamin C were within normal limits.

I am, Sir, yours faithfully,

L. J. WITTS.

St. Bartholomew's Hospital and College,
London, E.C., Nov. 10th.

BRITISH MEDICAL ASSOCIATION

THE COUNCIL DINNER

ON Tuesday, Nov. 10th, a dinner was given by the Council of the British Medical Association in the Association House, Dr. E. Kaye Le Fleming presiding.

After the royal toasts had been drunk Prof. R. M. F. Picken, proposing the toast of The Common Health, said that though it was to-day widely disputed whether health was common or not, historical and numerical data seemed to prove that the health of the people was not deteriorating. He spoke of the work of the Association in setting up committees to consider the problems of nutrition and physical fitness, but struck a warning note against exaggerating its benefits, for disease may attack even a well nourished body. The best defence of health was a well trained and well utilised medical profession and Prof. Picken attached much importance to the proper training of medical students in the preventive aspects of medicine. In coupling Sir Kingsley Wood's name with the toast he thanked him for his courtesy to the profession in the past and promised him the continued support of the Association in the future.

In reply, Sir Kingsley Wood cited his fellow guest, Sir Thomas Barlow, as a good example of what the common health should be. He said that Lord Nuffield's munificence had given not only money, but courage and inspiration to all who were striving to build up our medical services. As a layman he was struck by the ever-increasing complexity of medical science and in this connexion he stressed the important rôle played by the family physician in the early diagnosis of disease, for he was the first line of defence and on him rested the duty of the prompt allocation of suitable cases to the appropriate quarter for further help. In the battle against cancer in particular the family physician was in the front of the struggle. Referring to the Government's campaign for a Better Britain, he deprecated such headlines in the press—which had met his eye—as "British people to be made fitter by law." There could be no mass production of national health, it was not only knee-bends and jerks that were wanted but all that went to build a healthy mind in a healthy body, and he wished to assure the Association that the housing campaign and the maternity and child welfare services would not be slackened. The Government planned in the future not only to protect the health of the masses by the provision of good sewage and clean water, but also to build up the health of the individual.

In a witty speech Sir Farquhar Buzzard proposed the health of the Guests, whom he compared for their number to the Milky Way, while he declined to differentiate them as fixed stars or planets, as those who held official or political positions could not be fixed. Among those to whom he referred by name were the Marquis of Zetland, Sir John Megaw, Lord Nuffield, the heads of the Navy, Army, and Air Medical Services, and the vice-chancellors of the Universities of Oxford and London, and the president of the Royal Society. Sir William Bragg, P.R.S., replying, said that it was nice to meet doctors somewhere else than in their waiting-rooms. He referred to the scholarships recently founded by the Royal Society for research into the problems of malaria, and of nutrition in India. And although a chair-attendant in Hyde Park had lately told him that "what was wrong with the blinking world was too much science," he still felt sure that in the long run pure science always had its application and conspicuously in the sphere of medicine. Mr. H. L. Eason also replied for the Guests and in the course of a gay little speech expressed his pleasure that as yet there was no sign of Hay dieting among the Association.

Sir Kingsley Wood proposed a hearty vote of thanks to the chairman, and Dr. Le Fleming in reply referred to Dr. G. C. Anderson's coming visit to India to inquire, among other things, into the problem which has arisen there in connexion with the so-called native licentiates who practise alongside the graduates from the universities.

At the close of a highly successful function the company stood for the rendering of the National Anthem.

LONDON HOMŒOPATHIC HOSPITAL.—The mayor of Holborn on Oct. 30th opened the extension to the casualty department of this institution. The extension has cost £2000.

OBITUARY

SIR ALFRED PERCY BLENKINSOP, K.C.B., C.M.G., M.R.C.S.

MAJOR-GENERAL AND COLONEL COMMANDANT, R.A.M.C.

WE announced last week the death of Sir Alfred Percy Blenkinsop on Nov. 3rd. The occurrence was a sudden one, and the news has been received with widespread regret in the large circle with which his official position had brought him in contact as well as among an unusual number of personal friends.

Major-General Sir Alfred Percy Blenkinsop was the son of the late Lieut.-Colonel William Blenkinsop, and was born in 1865 and educated at King's School, Canterbury, and University College, London. He took the qualifications of the English Conjoint Board in 1887 and immediately entered the R.A.M.C., where his career was afterwards to become so distinguished. He became Brevet Lieut.-Colonel in 1910 and Lieut.-Colonel two years later, and was for a time Assistant Commandant at Millbank. His first foreign service was in Sierra Leone, but he saw two years' service in the South African War and proved his qualities by obtaining the Queen's medal with three clasps and the King's medal with two clasps. He was then appointed Assistant Director of Medical Services in India, a post which he held for two years, but just before the war he was called to the War Office in the position of A.D.G. Heavy official duties claimed him for the next two years, but in 1917 he was relieved of these by selection for the important and responsible post of Director of Medical Services in Mesopotamia. He proved a highly successful officer and administrator in difficult and often critical circumstances, was mentioned in dispatches four times, and received C.M.G. and the Order of the Crown of Rumania as a Grand Officer of the Order. He retired from the service in 1923 when he received the K.C.B., and was appointed honorary physician to the King and Colonel Commandant R.A.M.C.

SIR A. P. BLENKINSOP

[*Photograph by Elliott & Fry*

We owe to Major-General Sir Guise Guise-Moores the following tribute to his brother officer:—

"The death of 'Blenky,' as he was known throughout the Service, has by its suddenness brought home to his many friends in many lands the loss they have severally sustained; and to the corps to which he was conspicuously identified an abiding sense of regret. His recent appearance at the annual dinner belied any thought of an abatement of his striding vigour, or the persistence of his mental powers. Sir Percy, like his brother General Sir Layton Blenkinsop, out-talled the tallest of men, and his presence in any gathering of them at once focused attention.

"My first actual contact with him was in the pre-war days when he occupied the post of Assistant Commandant at the R.A.M. College, Millbank. There his dominant personality was always to the fore in meeting and solving the varied problems incidental to the organisation of a teaching institution, and to framing disciplinary measures essential for young candidates seeking commissions, who for years emancipated from restriction, had perforce to fall into ways that could never be ways of gentleness, and to follow paths that could not always be paths of peace. Blenkinsop possessed a code of action—conduct typical of his character and upbringing, and invariably regulated by the soldierly qualities of truth and justice.

"On the termination of his tenure of office at the College he left for the East, and when Arthur Sloggett became D.M.S. India in 1912, he invited Blenkinsop to be his staff officer. India, a land of regrets to so many, was never a country whose council took cognisance of the needs of the medical services—for peace or war. Finance took good care against that, and its medical department had not at any period of our occupation been modernly or adequately equipped, except in *1910–18*—but that's another story. Both Sloggett and Blenkinsop, early realising this, were glad to quit the country, and it was reserved for Babtie later on to meet the slings and arrows of misfortune, that in justice finance alone should have met. Sloggett was ordered home in 1914 to take over the duties of D.G., A.M.S. at the War Office, and Blenkinsop accompanying him became his A.D.G. There he remained till 1917. Sloggett left for France in 1914, and Blenkinsop then came under the ægis of Sir Alfred Keogh, who then returned to the D.G.'s vacant chair. The two Irishmen soon learnt to understand one another in trust and in deed, and to his subordinate, Keogh left in its entirety the immensity of the provision of the R.A.M.C. personnel required for all fronts—a gradually increasing entity which at end outnumbered the original Expeditionary Force—the old contemptibles. Homecoming on occasional leave from France, it was my privilege to seek out 'Blenky' in his sanctum. He sat from day to day wrestling with the intricacies of figures, numbers, and reinforcements with an enigmatic reticence on all things personal and impersonal, in sheer loyalty to his chief; but at heart, with one objective indelibly lined on the tablets of his mind—that of freedom to come. He fretted under the curb of a sedentary restriction that the work at the War Office entailed, and longed to ride away under the snaffle—a free man. This was his set determination to attain, an obsession as fixed as the eyeglass he invariably wore, and so advantageously used for subjective purposes, as and when occasion called for its concentration on the interviewed or interviewer. The day arrived in the waiting when patience and perseverance were rewarded. and in 1910 Blenkinsop left for the Near East on being appointed D.M.S. British Forces in Mesopotamia and the Black Sea. Here was freedom with a reality. He soon obtained a working knowledge of the climatic conditions and the diseases incidental to the country. He organised and perfected its hospital, sanitary and transportation services, and at the last was justly proud of the fact that under his guidance and jurisdiction the sick-rate and mortality of the troops had been greatly reduced. This was fully recognised and Blenkinsop, with his mission accomplished and his ambition satisfied, returned home to promotion at the Horse Guards as D.M.S. Eastern Command, and eventual retirement with a K.C.B. and the easier and less exacting rôle of a colonel commandant of the corps.

"In contemplation, one likes to recall the 'Blenky' of the time when his travelling days were o'er, with the repose that the lesser activities of a commandantship allowed giving him opportunity for intimate social contact with his brother officers at the headquarters mess, his home, and elsewhere. As he approached the sere and yellow leaf of life he mellowed with it, and gave the impression of one who communed with nature, and had thereby learnt the lessons reserved for those who seek its mysteries and unquestionably abide by its teachings. 'Blenky' always gave of his best, and we who remain are indubitably his debtors for a life devoted to the interests of his corps and his profession."

WILLOUGHBY MASON WILLOUGHBY,
M.D. Camb., D.P.H.
MEDICAL OFFICER OF HEALTH FOR THE CITY OF LONDON

Dr. W. M. Willoughby, medical officer of health for the City of London, who died in St. Bartholomew's Hospital on Nov. 4th was born in Plymouth in 1875. He was educated at Plymouth College and University College, Bristol, whence he obtained a scholarship at Gonville and Caius College, Cambridge. He took honours in the natural sciences tripos in 1897, and choosing medicine as a career, studied at St. Bartholomew's Hospital and graduated M.B., B.Chir. Camb. in 1900. After a short period of general practice in a mining district of South Wales he entered, in 1901, the public health service, as a boarding medical officer on the staff of the Port of London Sanitary Authority. A year later he obtained the diploma in public health, and in 1904 proceeded to the M.D. degree, submitting a thesis on the Site of Pain in Visceral Disease from an Embryological Standpoint, which showed the scientific outlook that he always had.

DR. WILLOUGHBY

[Photograph by C. E. Dixon

In 1908 Willoughby was appointed medical officer in charge of the Port Sanitary Authority's isolation hospital at Denton, near Gravesend, and in 1914 he was made deputy M.O.H. of the Port. During this period he gained a wide experience in the diagnosis of small-pox and plague and in the prevention of the spread of these diseases from infected ships. A great variety of infectious diseases came under his care at the hospital, but it was probably the cases of enteric fever which interested him most. The hospital was rarely without at least one such case and in many instances the patients were critically ill when they were admitted, having had no skilled nursing on board ship. Willoughby devoted the closest personal attention to these cases and was remarkably successful in his treatment. Also the first special regulations for the prevention of the importation of unsound food were issued in 1908; there was much to be done in the early days and Willoughby would himself take a hand in the practical work of meat inspection.

On the death of Dr. Herbert Williams in 1916 he was appointed M.O.H. of the Port of London, and he took command at a time when, owing to war conditions, the responsibilities were unusually heavy, but his years of experience enabled him to deal successfully with every danger and difficulty and an equable temperament helped him through a very strenuous period. In 1928 he succeeded the late Dr. Howarth as M.O.H. of the City of London. In a number of ways the experience he had gained in the Port was useful in the City, for he had not confined his studies to port sanitary questions. He had taken a keen interest in tuberculosis, venereal diseases, eugenics, and nutrition, and he brought to all his public health problems a keen intellect and a trained scientific mind.

His death is mourned by his widow; his only son who, as an assistant medical officer in the Port of London, is following in his father's footsteps; the Corporation of the City of London who held him in high esteem; his staff, who were devoted to him; and his colleagues in the public health service who admired and respected him.

"C. F. W." writes: "Willoughby was such a quiet, unassuming man that, despite the important position he held, only those who had the privilege of close association with him had the opportunity to appreciate his learning, his wisdom, and his generosity in thought, word, and deed. By inclination and training he was a scientist. In his early days he was devoted to biology, but much work with the microscope began to affect his eyes and he took up geology to which, in his later years, he devoted most of his leisure and which he thought would make an ideal hobby when he retired, providing him with fascinating occupation both out of doors and at home. Whenever he went away, either on a holiday or to attend some public health congress, he would take the opportunity to investigate the geology of the district and would return with his car loaded with 'rocks' which he had collected for study at home. But he never forgot his biology and it influenced his outlook on many public health problems. He held that there was a tendency to concentrate on the individual to the neglect of the race. Though he deplored this, he refrained from the public expression of his views because he realised the demands of humanitarianism. He was keenly interested in eugenics and in recent years he followed closely work on nutrition, which he felt was fundamental in the study of preventive medicine.

"Willoughby carried out all his public health duties conscientiously, but he was critical of anything that was not scientifically sound in conception. He did not like palliatives and had a contempt for mere expediency, nor would he pay lip service to 'stunts.' If, however, he had occasion to express unorthodox views he was most careful not to tread on public or private susceptibilities. He had a fine sense of the use of words and would employ them, not in their colloquial meaning, but with an appreciation of their etymology; his writings therefore needed close attention which was, however, always well repaid. He had a strongly developed artistic sense and at one time he did a good deal of painting in water colours. He had a lively sense of humour and was invariably courteous and considerate towards others; even during his last illness, which he endured with unflinching courage and uncomplaining patience, he would crack a joke with his visitors and apologise to his nurses for 'being so much trouble.' He will be sadly missed by his many friends, but nowhere will his loss be more keenly felt than in the Guildhall of the City of London."

FRANK CAMPBELL SMITH, M.R.C.S.

Dr. Campbell Smith died on Oct. 27th, aged 38. Since qualifying in 1927 he had spent most of his time at the London Hospital where as Freedom research fellow he explored various parts of the borderland between physical chemistry and medicine.

We owe the following note to one of his collaborators in this work: "A meeting with Campbell Smith was never confined to the common-place. However trivial the subject there was always a direct personal approach which made the recipient feel that for the moment at least there were not just two tongues wagging but two people standing above the occasion. He was a barbarian refusing to accept the civilised conventions; essentially on the look-out, on the attack, in quest, and finding these instincts continually baulked by the defensive purpose of these conventions. Yet no one could be kinder, more gentle, or considerate in circumstances requiring these. This directness and clear-sightedness was characteristic of his work also. His virtue as a man of research was his ability to know with something more than his intellect the character of the problem that engaged him. Formal considerations had only secondary importance. As a student in his B.Sc. practical examination he pointed out to the examiners that a question they had set was impossible to answer. They finally had to agree, told him he might go, and gave him a "first." Some might have worked through it to show the examiners their error; others might have been puzzled at their curious results; but to 'Budge' Smith what was the use of showing that something was wrong when he knew it was wrong?—in an examination. He always had a right sense of the occasion. He was a pioneer in ultra-violet absorption spectrography which, in the hands of others, had been much abused and brought to discredit. He realised its power and its limitations and never made the mistake of coming to unwarranted conclusions. It is now a well-established method.

"In later years he seemed to feel more and more the restricted attitude of approach to science and its interpretations. It may have been because of this that he abandoned research and went into general practice in the East of London. He was robbed of the opportunity of finding himself and others in his new endeavour."

FRANCIS JOSEPH SADLER, M.D. Oxon., D.P.H.

THE death occurred on Saturday last, Nov. 7th, in the Barnsley Beckett Hospital, of Dr. Francis Joseph Sadler, and by the event a sequence of more than a century of medical work in Barnsley is closed. Dr. Sadler's grandfather, Michael Thomas Sadler, was a well-known surgeon and social reformer. His father, also Michael Thomas Sadler, was a medical practitioner in Barnsley, a prominent and successful worker in the interests of secondary education in the town, and one of the founders of the Barnsley Beckett Hospital. Francis Sadler was educated at Rugby and Wadham College, Oxford. From Oxford he went for his medical training to St. Bartholomew's Hospital and graduated as M.B., B.Ch. in 1894, taking the diploma of D.P.H. in the following year and later proceeding to the M.D. degree. After holding certain resident appointments he went into practice at Barnsley, and, like his father and grandfather before him, became a member of the staff of the Barnsley Beckett Hospital. For many years he was in partnership with Dr. J. H. Fryer. He was appointed medical officer of health and school medical officer for Barnsley and, at the time of his death, was M.O.H. for Barnsley rural district. He was also physician to the Kendray Hospital for Infectious Diseases, a certifying factory surgeon, and had filled the office of president of the Sheffield Medical and Chirurgical Society. True to the family tradition, he was deeply interested not only in the general health but in the social betterment of the community among whom he worked. He was president of the Lady Harriet Wentworth Charity, a body which represents the charity organisation of Barnsley, and was trustee to the Cooper Art Gallery at Barnsley, for he had a great belief in the good influence which a study of art might have on an industrial population. To this gallery his brother, Sir Michael Sadler, late master of University College, Oxford, recently presented a collection of English drawings. Dr. Sadler's athletic enthusiasm was shown by his interest in the Barnsley Football Club, of which he was president; such interest in athletics was lifelong with him, for at Rugby he had been a well-known boy runner, and later he represented Oxford as a three-miler.

Dr. Sadler was 69 years of age at the time of his death, which followed on a brief illness. He married Miss Helena Tause who predeceased him, and is survived by an only daughter.

INTERNATIONAL CONTROL OF DANGEROUS DRUGS

FURTHER progress has been made towards effective international action for the suppression of illicit traffic in dangerous narcotic drugs. At the last meeting of the Council of the League of Nations a Convention and Final Act, drafted by the conference which sat at Geneva last June, was reported by M. de Vasconcellos, the representative of Portugal. He pointed out that the penalties inflicted for offences in connexion with the illicit traffic were not sufficiently severe. He expressed the hope that the Convention, which prescribed much heavier penalties, would be signed and ratified as soon as possible by all participating States. Unfortunately it had become known that the United States of America took exception to the Convention because no provision had been included in it for the criminal prosecution of habitual opium-smokers. Apparently while there was unanimity in the desire to arrive at total abolition of opium-smoking there was a large majority averse from the immediate application of such policy. It was apprehended that such drastic measures would lead to an extension of the illicit traffic.

To the Permanent Central Opium Board has been added a representative of Uruguay, M. Abelardo Saenz, and the hope was expressed that this appointment would promote that fuller coöperation between the Board and the Latin-American countries which was much to be desired. The Council of the League renewed the appointment of Mr. L. A. Lyall (British) and Dr. de Myttenaere (Belgian) as assessors to the Advisory Committee on Dangerous Drugs.

PARLIAMENTARY INTELLIGENCE

NATIONAL PHYSIQUE

THE debate on the Address was resumed in the House of Commons on Nov. 4th and 6th.

Mr. A. V. **ALEXANDER** said the Labour Opposition welcomed the Government's recognition that there was a serious deterioration in the physical standard of the people. There was no better evidence of this than the Secretary of State's action in asking for recruits of a lower physical standard than had hitherto been required. If they looked at the actual facts with regard to nutrition there should be no need to urge on the Government the necessity for action. In a recent report of the League of Nations it was said that "in the United Kingdom the diet of at least 50 per cent. of the population falls short of the desirable standard."

That was not a small proportion, and the report went on:

> "It is estimated that to raise the consumption of this low income half of the population merely to the level of the next group would require an increase of 16 per cent. in the amount of milk consumed, 15 per cent. in that of butter, 18 per cent. in eggs, 12 per cent. in meat, as well as a 25 per cent. increase of expenditure on fruit and vegetable. Even then the diet would leave room for considerable improvement."

Dealing with economic considerations the report said:

> "The reduction in retail prices of food has been accompanied by a still greater reduction in income of many classes of the population, and this in turn has led to serious malnutrition amongst certain classes."

Again, dealing with some of the more deadly forms of disease from which our working class suffered to-day, the report said:

> "Here again, therefore, it is possible that an increase in the consumption of protective food, especially by poor people, would reduce the incidence and death-rate due to this disease. . . . In general, it would seem that, at the very lowest level of income, workers concentrate their dietaries on bread and cereals; with the first increases above this level, more cheap fats and meats are consumed; with further increases in income, butter is introduced into the diet.

If the Government, he concluded, were not prepared to deal with the economic purchasing power of the people, even inside the present social system, they would not be able to make any rapid progress in improving the physical condition of the people.

PHYSICAL TRAINING

Sir **FRANCIS ACLAND** said it was a delightful thing to watch the new type of physical training which was being given in our schools, and to realise how well they were providing on the whole for playing fields as well as other methods of physical training. But surely it must do harm rather than good to give more exercise to those whose feelings of hunger it would only intensify, or to those who were being so improperly fed that exercise quickly induced fatigue. The most obvious and urgent matter was a better use of milk in schools. He was delighted to see the prominence given in the King's Speech to the campaign for physical efficiency, but unless it was accompanied by something on big lines in the way of better nutrition it would not get the general support which it deserved. He was also glad of the phrase about legislation to provide medical care for young persons who had left school and entered employment. A boy leaving school at 14 and entering directly into employment could not get help from his approved society for dental service until he was 18½. That would not do. Our school dental service was one of the most valuable health services in connexion with education, and in the best counties it was becoming almost a rule that children should leave school with their teeth in good condition. Then came this gap during a most critical period of 4½ years, when the child was almost passing into the adult stage, and during that time he could get no help for his teeth from the approved societies. There was therefore a tendency for these lads to neglect their teeth, and by 18½ they were so bad that they allowed them to get worse, until perhaps some years later all of them had to come out. By that time real physical harm had been done to the health of the young person. He felt sure that the Minister of Health would bear that point in mind in the measures he proposed to take.

CONFLICTING VIEWS

Mr. **GEORGE GRIFFITHS** said that at the end of last year 8376 miners in this country were suffering from nystagmus; he regretted there was no reference to measures for dealing with it. On the question of nutrition he quoted the results of a door-to-door canvas of 1000 families, many of whom were found to be living on less than 2*s*. per head per week, or 1½*d*. per meal.

> Examination of the family budget showed that 14 of these families were living on less than 2*s*. per head per week, 52 below 2*s*. 6*d*. per head, 130 below 3*s*., 102 below 3*s*. 6*d*., and 88 below 4*s*. Therefore out of 1000 families 386 were spending less than 4*s*. per head per week.

Before they gave the people dumb-bells the Government should see that the people got sufficient food. There were thousands of children who had hardly sufficient strength to break the skin of a rice pudding.

Mr. **WALTER ELLIOT**, Secretary of State for Scotland, said the Government believed that the system in this country had done as much to improve the conditions of the people and as rapidly as any other régime which could be mentioned. It was suggested that our people should have more food and a better standard of living. Of course, but the Government could quote the remarkable fact that when the Labour Government were in office one man lost his job every minute, day and night, during the whole of that time, and they worked up to two men a minute towards the end of the period, whereas during the past 12 months of the present Government one man every minute had got a new job in this country, and 488,000 of those people were still holding their jobs at the end of the year. The Government considered that those people were more likely to be able to purchase the protective foods which Mr. Alexander desired them to have than if they were unemployed. That was proved by the fact that the consumption of those very foods had gone up enormously in recent years. Since 1930 the people of this country were eating 660,000 cwt. more beef and veal, 860,000 cwt. more of mutton and lamb, 3,000,000 cwt. more of sugar, and nearly 3,000,000 cwt. more of butter. They were enabled to buy those things because more of them were in employment. That was the general policy of the Government towards all these questions.

Mr. T. **JOHNSTON** said he would be disappointed if what they got in legislation as a result of the promises in the King's Speech was only something in the nature of physical drill for Army service purposes. Lord Horder had said it was no good telling people to drink more milk if they could not get it. Every investigator—the League of Nations, Sir John Orr, and the rest—proved that anything from 10 per cent. upwards of our population was living below the British Medical Association's minimum standard. Ninety-six per cent. of school-children had rotten teeth, and every medical authority told them that was due to the absence of vitamin A, because of the absence of the necessary milk. Anæmia, weakness, and invalidity were testified to by every authority of every class and every political colour. They asked that in a land capable of producing more food and more wealth the primary consideration should be consumption, human need, and that if necessary they should increase the money tokens to meet the increased productivity of wealth.

Sir FRANCIS FREMANTLE remarked that what Mr. Johnston had said about the lack of fitness in the population had aroused great sympathy in the hearts of hon. Members. As a medical officer of health he was bound to admit lack of fitness in the population at the present time. But dental caries was also prevalent in the well-to-do schools where there was no lack of vitamins in the diet; one of its main causes was the amount of sugar and sweets consumed. Many people, quite apart from politics, spoke of a lack of nutrition of the people, as though Providence made all men ideal and perfect. It was quite right to show what a large hiatus there was between existing conditions and the perfection at which they aimed, but to imagine that that hiatus was due to the iniquities of the Government, or the medical profession, or of anybody else, was absurd. At the same time the position was, without doubt, very serious when they found such a very large number of defects in those who came up for any particular Service, and in particular for the national defence. A large amount of ill-health to-day was caused by over-eating, or by bad eating and the bad choice of food. Hunger to a certain extent was a good thing. The medical profession looking into these matters were finding it difficult to generalise. He was much afraid of money being poured out in consequence of agitation as though it was going to solve the question. Because of the State provision less was provided by bad or careless parents at home. The one thing to do was to bring the people back to a state where they had employment on proper lines in sufficiency so as to be able to buy the things they required. The fitness of the people depended very largely on the fitness of the children in the school, and that depended very largely on the teachers understanding how to administer it. A great deal of emphasis required to be laid on the teaching of physiology as a separate branch. The work of medical officers of health brought them into touch with healthy life; it was their job to keep people healthy; and that side of the profession needed to be encouraged and strengthened, above all in the medical schools, by turning out doctors who thought of health rather than of disease as their main function.

AN OPPOSITION AMENDMENT

Mr. A. GREENWOOD, on behalf of the Labour Opposition, moved the following amendment:

> "But regret that your Majesty's advisers fail to recognise that under the existing capitalist system the present improvement in trade and industry, largely stimulated by the world race in armaments, can only be temporary; that, while making tardy acknowledgment of the deterioration in the physical fitness of the nation, due mainly to long-continued unemployment, low wages, and consequent malnutrition, they are continuing to enforce a means test which intensifies this deterioration and to neglect the problems of those areas which have been most severely affected; and that they have no proposals for making the fundamental changes in the basis of society which are necessary in order to create a Socialist commonwealth in which the full resources of the nation shall be utilised for the benefit of the community as a whole."

This amendment, he said, was put down as a challenge to the outworn theories on which the policy of the present Government was based. The depressed areas were really outward and visible signs of a great, fundamental, deep-seated disorder in the economic system. There appeared to be a curious reluctance on the part of the Government and its supporters to admit that there was any such thing as malnutrition. If scientists worked out the kind of diet necessary to attain physical efficiency, and people had not the money to buy the quantity of food, those people must suffer sooner or later. It must be plain that it was not a case of spending the money badly, or of bad cooking; it was the simple stark fact that there was not enough money. It was curious that this new-found zeal for physical efficiency should coincide with the Government's rearmament programme. Open spaces, exercises, and gymnasiums came a very long way after good food, good clothing, and good homes. There would be no improvement in the national physique by exercising distorted and stunted bodies. Malnutrition existed in this country, which was still the richest in the world. Millions of people fell below Sir John Orr's standard, not because of the poverty of the nation but because of the way in which the wealth produced was distributed. Unless they had increased public control they could not use the nation's resources to the best advantage.

MINISTER OF HEALTH'S REPLY

Sir KINGSLEY WOOD, Minister of Health, said that the whole implication of the amendment, and the statements in it, could only be described as grotesque and absurd. The amendment alleged deterioration, not in certain sections of the community or in some part or other of the country, but of the physical condition of the country a a whole. That was quite untrue. We were not a C3 nation; the reverse was true. Viewed over any period of time which enabled just comparisons to be made, our national health was improving, not merely steadily, but remarkably.

The recent speech of the Chancellor of the Exchequer at Margate pointed to one of the most important ways of achieving improvement by urging the vital necessity in the interests of the better health and happiness of the nation of taking further national concerted action in increasing individual fitness and general physical development and education. That speech had met with an enthusiastic response, especially from the younger generation, the voluntary organisations, and the men and women who were engaged in social and medical work. One of the best signs of the times was the growing appreciation of the value to the individual citizen of right ways of living, eating, clothing himself, and particularly of the increased health and fitness that could be obtained for both body and mind from physical exercise and education, such as field games, swimming, hiking, and more life in the open air. We were living much longer than our forefathers, and we had to see to it that these increased years were worth living by the promotion of health both in spirit and in body.

The problem of nutrition was playing, and must play, an increasingly important part in our health plans and policy. The questions of what was sound nourishment, what constituted a well-balanced diet, and how we were to apply in practice our modern knowledge of these matters, were engaging the attention of many experts throughout the world. We had our own expert Advisory Committee dealing with this matter, and it was probably one of the best committees on nutrition to be found in any country. Its members included such men as Sir John Orr, Dr. E. Mellanby, Prof. Gowland Hopkins, and Prof. E. P. Cathcart, and every effort had been made to obtain the best advice possible. This committee was going on steadily with its work, particularly in relation to enquiries into diet and nutrition. A further step has just been taken. The collection of family budgets, which was part of the Ministry of Labour's investigation of the cost of living, would provide much useful information about diet. The Advisory Committee desired a number of quantitative dietary surveys to be carried out, the cost of which would be borne by the Ministry. The milk in schools scheme was in operation in schools containing over 90 per cent. of the elementary school population, and in addition large quantities of liquid or dried milk were being distributed free or at cheap rates to maternity and child welfare centres. It was extraordinary that rather less than half the children were at present taking advantage of the milk scheme, and it was not a matter of poverty. An examination was now being made as to the best means of increasing the consumption of milk under the schemes now in operation. There was no medical divergence of view on the value of milk, and when he had received the report of the Milk Reorganisation Commission the question would be considered of how to extend the scope of the milk scheme.

Malnutrition, said Sir Kingsley, was a word which was much used and much abused. One of the best tests was to look at the conditions of the children. The report of the London County Council's school medical officer for the past year contained the following statement:—

> "On a careful clinical assessment of the state of the children's nutrition in the routine medical inspection in the elementary schools during 1935, 76·9 per cent. of the children fell into Class 2 (nutrition normal), a further 17·4 per cent. were classed 1 (nutrition exceedingly good), making 94·3 per cent. whose nutrition was satisfactory. The remaining 5·7 per cent., whose nutrition was adjudged unsatisfactory, were mainly in Class 3, nutrition subnormal (5·6 per cent.), and only 152 (0·08 per cent.) children out of 189,203 examined fell into Class 4 ('definite pathological nutrition')."

Representative school doctors, it was stated in this report, who have been interrogated with regard to the returns are of opinion that there has been no deterioration in the children's general condition of nutrition.

It was a matter of surprise that Mr. Greenwood had not given testimony that day to the remarkable improvement in employment and wages in this country, for the aggregate net weekly increase in rates of wages was greater in 1935 than in any year since 1924.

The Debate in the Lords

In the House of Lords on Nov. 10th Lord Mount Temple asked the Government what steps they proposed to take to improve the physical fitness of the youth of the country.

Lord **DAWSON** said that it would be wrong to say that the nation was deteriorating, but there were the seeds of deterioration in our midst. Definite warnings had been ignored, and consequently the question had become urgent. In our present civilisation the death of the unfit was being prevented, but we had not planned any active adequate substitute. There was only one adequate substitute which was to promote fitness on the one hand, and to see to it that we took care of the inherently unfit, and prevented them from vitiating the race. We had to plan actively for a fit race, and that must actuate all our policy. Why should we not use measures to prevent the birth of children who were not wanted, who were a misery to themselves, and damaging to the race? The medical profession should be exempted from the terms of the ancient law against maiming, and its powers of preventive treatment extended to such cases where it was asked, and where it was right to proceed.

Lord **HORDER** said he spoke in supplement to and not in substitution of Lord Dawson's ideal. As one who was anxious to avoid delay, he said, "Look after the accessibility of food and nutrition will look after itself." The question of food and distribution was not a matter for one Ministry but several, and he would like to see coöperation in this respect between the Ministries of Health, Agriculture, and Transport, and the Board of Trade.

Earl **DE LA WARR**, Parliamentary Secretary for the Colonies, said that the Government intended to mobilise voluntary effort, plus that of the local authorities, and help and encourage them to give greater facilities for promoting public health. The basis of the scheme would rest on local authorities and existing voluntary organisations.

NOTES ON CURRENT TOPICS

Voluntary Euthanasia

IN the House of Lords on Nov. 4th Lord **PONSONBY** presented the Voluntary Euthanasia (Legislation) Bill, to regularise in certain conditions the administration of euthanasia to persons desiring it who were suffering from illness of a fatal and incurable character involving severe pain.

The Bill was read a first time.

New Bills Presented

In the House of Commons on Nov. 6th the following Bills were presented by private Members:—

Workmen's Compensation.—Bill to amend the law relating to workmen's compensation.—Mr. Mainwaring.

Marriage.—Bill to amend the law relating to marriage and divorce.—Mr. De la Bère.

Annual Holiday.—Bill to make provision for an annual holiday for employed persons.—Mr. Rowson.

Offices Regulation.—Bill to regulate offices and the employment of young persons therein.—Mr. Ammon.

Deaf Children (School Attendance).—Bill to lower the age of compulsory school attendance in the case of deaf children from seven years to five years.—Mr. Duckworth.

Medical Practitioners' Communications (Privilege).—Bill to provide that certain communications between medical practitioners and their patients shall be privileged from disclosure in evidence in courts of law.—Sir E. Graham-Little.

Coal Mines (Employment of Boys).—Bill to amend the law relating to the employment of boys underground in coal-mines.—Mr. C. Taylor.

Registration and Regulation of Osteopaths.—Bill to regulate the practice of osteopathy and to prescribe the qualifications of osteopathic practitioners.—Vice-Admiral Taylor.

Prohibition of Vivisection on Dogs (Scotland).—Bill to provide for the abolition of vivisection upon dogs.—Mr. T. Henderson.

Employers' Liability.—Bill to amend the law relating to the liability of employers to their workmen for injuries caused by the negligence of fellow workmen.—Mr. Potts.

Scottish Midwives Bill

In the House of Commons on Nov. 10th Mr. **ELLIOT**, Secretary of State for Scotland, presented the Maternity Services (Scotland) Bill to make further provision with respect to maternity services in Scotland, to amend the Midwives (Scotland) Act, 1915, and to provide for the combination of local authorities for certain purposes under the Notification of Births (Extension) Act, 1915.—The Bill was read a first time.

QUESTION TIME

THURSDAY, NOV. 5TH

Bronchial Troubles among Textile Workers

Mr. **RHYS DAVIES** asked the Home Secretary if it was the intention to set up a committee to inquire and report on bronchial troubles among textile workers consequent upon the prevalence of dust in card rooms, with a view to arriving at a scheme whereby compensation might be paid in these cases; and when it was proposed to set up such a committee and the probable date it would commence to function.—Mr. **GEOFFREY LLOYD** replied: As previously explained, the Workmen's Compensation Act does not appear to be applicable owing to the difficulty of distinguishing the cases in which the illness is due to the dust, but my right hon. friend is considering the setting up of a committee to explore the question whether a workable scheme can be devised for providing some compensation for cardroom and certain other workers disabled by respiratory illness as indicated in the report of the Committee on Dust in Cardrooms, and he hopes to be able to make an announcement at a very early date.

Medical Opinions and Workmen's Compensation

Captain **STRICKLAND** asked the Home Secretary whether he was aware that in cases of poisoning resultant on industrial occupation the claimant for compensation was required, before undergoing official medical examination, to indicate in medical terms on an official form the exact type of poisoning from which he claimed to be suffering and for which he desired to be examined; and whether he would consider such alteration of procedure as would ensure that claimants should receive the benefit of medical opinion before having to fill in the form in such technical terms.—Mr. GEOFFREY LLOYD replied: A workman who thinks he is suffering from one of the scheduled industrial diseases can, and generally does, consult his own medical adviser, and in a case of difficulty he can apply for assistance to his approved society who are in a position to obtain a further medical opinion. I have no information before me at present to suggest that these arrangements are not sufficient.

Supervision of Nursing-homes

Dr. LEECH asked the Minister of Health whether he was in collaboration with the London County Council or with the metropolitan borough councils, taking suitable steps to ensure that the furnishings of rooms in private nursing-homes in the metropolitan area were always sterilised after the rooms had been vacated by a patient.—Sir KINGSLEY WOOD replied: The supervision of nursing homes in London is the responsibility of the London County Council. I will communicate with them on this matter and inform my hon. friend of the result.

Sir FRANCIS FREMANTLE asked the Minister of Health if he was aware of nursing-homes still unregistered under the 1927 Act; and what steps he was taking to ensure the closure of unregistered and the proper conduct of registered nursing-homes.—Sir KINGSLEY WOOD replied: I will send my hon. friend a copy of the circular which I have recently issued to the local supervising authorites on this subject.

Sir F. FREMANTLE: Will action be taken on the side of the local authority to remedy the standing anomalies that are prevalent, there being thousands of nursing-homes that are unregistered, and nursing-homes that are registered and not properly supervised?—Sir K. WOOD: The answer is that action will rest with the authorities concerned.

Housing Redevelopment Schemes

Mr. DAVID ADAMS asked the Minister of Health if he would give the names of any local authorities in England and Wales which had passed resolutions declaring areas to be proposed redevelopment areas under the provisions of Section 13 of the Housing Act, 1935; and whether any schemes for such areas were now going forward.—Sir KINGSLEY WOOD replied: Resolutions declaring areas to be proposed redevelopment areas have been passed by the borough councils of Liverpool, Norwich, Lowestoft, Bangor, and Croydon, and by the urban district council of Brierley Hill. Inquiries have been held in the case of Liverpool and Norwich, and the reports of the inspectors are under consideration. In the other cases procedure has not yet reached the stage at which an inquiry can be directed.

Mr. HERBERT WILLIAMS asked the Minister of Health if he could furnish an estimate of the number of houses in England and Wales on March 31st each year since the date of the last census.—Sir KINGSLEY WOOD replied: The number of structurally separate dwellings in England and Wales at the census of 1931 was 9,400,000. Table II. of the half-yearly publication on Housing shows the number of houses built in each half-year since the census. I have no complete information about the number of houses demolished during this period.

Special Investigation into Maternal Mortality

Sir FRANCIS FREMANTLE asked the Minister of Health if he had received the report of the Committee on Areas of High Maternal Mortality; and if he intended to publish it.—Sir KINGSLEY WOOD replied: I have not yet received this report, but I am hoping that it will be completed by the end of the year. I have already promised that the report will be made available to the House, and steps will be taken to give it publicity.

Housing in Scotland

Mr. HERBERT WILLIAMS asked the Secretary of State for Scotland if he could furnish an estimate of the number of houses in Scotland on March 31st each year since the date of the last census.—Mr. WEDDERBURN replied: The number of occupied private houses in Scotland at March 31st in each of the years 1932 to 1936 is estimated at: 1,155,000, 1,169,000, 1,186,000, 1,196,000, and 1,206,000 respectively.

MONDAY, NOV. 9TH

Compensation for Silicosis and Anthracosis

Mr. JAMES GRIFFITHS asked the Minister of Health the number of workmen certified to be disabled by silicosis or anthracosis who were in receipt of relief from the public assistance committees in the counties of Carmarthen, Brecon, Glamorgan, and Monmouth on account of their failure to secure compensation under the existing silicosis schemes.—Sir KINGSLEY WOOD replied: I regret that the records in my department do not enable this information to be supplied.

Physical Training of Women and Girls

Mr. DENVILLE asked the President of the Board of Education if he had considered the resolution which was passed by the Women's League of Health and Beauty, relative to the physical training of women and girls; and had he any statement to make.—Mr. GEOFFREY SHAKESPEARE, Parliamentary Secretary to the Board of Education, replied: My right hon. friend is much in sympathy with the work of this organisation, but he is not at present in a position to make any statement on the matter.

Health Insurance: Extension of Medical Benefits

Mr. ROSTRON DUCKWORTH asked the Minister of Health the additional cost of medical benefits under the National Health Insurance Acts if these benefits were extended to include pathological diagnosis, operations, and electrical, ophthalmic, hydropathic, radiant heat, massage, and convalescent hospital treatment; and whether he would take steps for this cost to be defrayed by any of the approved societies.—Sir KINGSLEY WOOD replied: The cost of providing all insured persons with the services detailed by my hon. friend as part of medical benefit under the National Health Insurance Acts would depend on the scope and conditions of the services, and I regret that I am unable to give any estimate. I would add that some of these services are already included within the scope of the additional benefits which approved societies having a disposable surplus may provide for their members, and that societies are in fact devoting large sums annually towards the cost of such services.

MARGARET STREET HOSPITAL FOR DISEASES OF THE CHEST.—On Nov. 4th the Marchioness of Titchfield opened a new X ray clinic at this hospital in Margaret-street, Cavendish-square, London. Dr. F. Hernaman-Johnson, the radiologist in charge, gave an address in which he spoke of the necessity for a specialist hospital to be equipped for general radiography and radiotherapy. After describing the favourable results obtained in the treatment of asthma and the help given to patients with chest diseases who happened also to have rheumatism, he concluded with a reference to the arrangements now made for private patients. The class of patient provided for, he said, had maximum incomes of £400–£500 a year, and their average income was much lower. "These patients pay for diagnostic X ray work on a scale identical with that in force at King's College Hospital. The provision of X ray treatment for small private fees is, however, I believe a special feature of this clinic. These fees are about one-quarter of those usually charged in the West End. Patients of this type have hitherto had no alternative between crippling themselves financially or becoming ordinary hospital patients."

The Cavendish-square institution is for out-patients only. In-patients are treated at the Fairlight Sanatorium, Hastings.

MEDICAL NEWS

University of Oxford

Dr. Simon Flexner, director of the Rockefeller Institute for Medical Research, has been appointed to the George Eastman visiting professorship for 1937–39.

Royal College of Surgeons of Edinburgh

At recent examinations of the College the following candidates were successful :—

L.D.S. R.C.S. EDIN.

M. A. Macdonald (with honours), W. G. Carson, G. O. Horne, F. S. Frank, Herbert Falkenstein, Reuben Green, W. E. Headlam, Livingston Rae, J. N. R. Thomson, Helmut Lewinsky, Ernst Stiebel, Dora Shirlaw, J. J. Hodson, W. G. Clarkson, E. B. Mackenzie, S. A. Nicholson, and F. E. Adams.

J. A. Hudson and A. E. Duvall have passed the examination for the higher dental diploma.

Royal Faculty of Physicians and Surgeons of Glasgow

At the annual meeting of the faculty on Nov. 2nd the following were elected office-bearers for the ensuing year: president, Prof. Archibald Young; visitor, Dr. John Henderson; hon. treasurer, Mr. J. H. MacDonald; hon. librarian, Dr. W. R. Snodgrass; representative to the General Medical Council, Mr. G. H. Edington; other councillors, Dr. Carstairs Douglas, Mr. A. G. Faulds, Mr. John Gracie, Mr. A. J. Hutton, Dr. H. L. G. Leask, Dr. J. Souttar McKendrick, Dr. R. Barclay Ness, Mr. William J. Richard, Mr. John Rowan, and Mr. J. Forbes Webster.

Dr. Ee Seng Lee (Dalmellington) was admitted to the fellowship.

Scottish Conjoint Board

At recent examinations of the Royal Colleges of Physicians and Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow, the following candidates were successful :—

L.R.C.P., L.R.C.S., AND L.R.F.P. & S.

Vincent Bellafiore, W. H. Berkman, G. H. Berry, L. L. Bernstein, Morris Binder, John Boyes, Alfred Dreifuss, Harry Einhorn, Denis Fabian, Minnie Faine, Andrew Forgacs, Leo Fred, Matthew Freed, I. I. Fuchs, Bencion Gilbowski, G. N. Girgis, Irving Gitzelter, Arthur Goldberg, H. I. Goldberg, K. G. O. Gordon, J. D. Gow, Wladimer Gurewitsch, R. R. Hair, David Hardy, N. H. Hass, M. L. Herman, Gunaratnam Jeremiah, Harry Kane, M. L. Kenig, W. P. Kelly, Walter King, D. P. Lewis-Badgett, Hilma C. C. M. Ljungfaldt, Milton Mamula, D. N. Markley, D. A. Martin, William Mears, Murray Meiselman, Max Michel, Julius Pomeranze, Sigrid M. Pribram, M. M. Ramadan, Nicholas Reiter, Herbert Rosenfeld, Caesar Rummelsburg, Herman Samuels, Jack Sang, Hans Schaefer, David Schreiber, P. B. E. Senewaratne, R. L. Siegel, A. M. L. Smith, A. F. Snyder, Orpha M. Speicher, Hans Ucko, Harold Warren, M. B. D. Welland, Benjamin Wiesenfeld, S. H. Wharton, H. H. Winsterstein-Gillespie, Rotoli Xaba, and C. H. Yeo.

On *Oct. 31st a ceremonial presentation of* dilpomas to the licentiates was held for the first time in Scotland at the Royal College of Surgeons, Edinburgh, at which Prof. W. T. Ritchie, president of the College, and Prof. Archibald Young, president of the Royal Faculty of Physicians and Surgeons, Glasgow, were present.

Royal Hospital, Wolverhampton

Thirty-four beds are to be added to the accommodation of this institution. A detached building of four storeys *is to be built on the southern side of the hospital,* which will be able to take a further 50 beds in the future. In the basement there is to be a swimming pool, and a new ward *for eight* cots and five isolation rooms is to be provided.

Port Regis Preparatory School

At this preparatory school two scholarships of £100 each are annually awarded to the sons of medical men. The school is at Broadstairs, Kent, and the scholarships were *recently founded* by Sir Milsom Rees. The next examination will be held on March 5th, 1937. Candidates must be under 9 years of age at the time of competing, and the scholarships are normally tenable till the holder leaves the school. The holders will be *selected at an* interview in London from among those boys who have done best in some simple examination conducted in or near their homes. Applications must be addressed to the head master, Port Regis School, Broadstairs, from whom full particulars may be obtained. The applications must be made not later than Feb. 20th, 1937.

New Tuberculosis Hospital, Cardiff

The Duke of Kent on Nov. 6th opened the new tuber*culosis hospital of the Welsh Memorial Association at Sully.*

Royal Society

The following is a list of those recommended by the president and council as office-bearers for the coming year: Sir William Bragg, O.M., president; Sir Henry Lyons, treasurer; Sir Frank Smith and Prof. A. V. Hill, secretaries; and Sir Albert Seward, foreign secretary. The 16 fellows nominated for the council include Prof. C. R. Harington, Prof. David Keilin, Prof. W. W. C. Topley, M.D., and Mr. Wilfred Trotter, M.S.

King's College Hospital

The annual dinner of past and present students of this hospital was held at the May Fair Hotel on Oct. 24th. Mr. H. A. T. Fairbank was in the chair, and proposed the health of the Hospital and Medical School, which was responded to by the dean, Dr. J. A. Drake. The chairman's health was proposed by Prof. G. F. Still.

Victoria Cottage Hospital, Barnet

The Princess Royal has consented to open this hospital, which has been closed for extensions, early in 1937. The hospital was founded in 1887 to commemorate the Jubilee of Queen Victoria, to provide voluntary hospital facilities for the districts of Barnet, East Barnet, Cockfosters, Hadley Wood, South Mimms, Arkley, and Totteridge. The population is now estimated to be over 50,000, and it became imperative to enlarge the hospital by providing a separate staff hostel, a children's ward, and additional wards. The extensions will cost about £20,000, of which £12,000 has already been collected.

Edinburgh Royal Infirmary: New Orthopædic Department

Ward 2 of Edinburgh Royal Infirmary has been converted into a department for the treatment of orthopædic cases. Sir Thomas Whitson, chairman of the board of managers, who opened the ward last week, emphasised the need for the coördination of the hospital services in the district. He expressed the hope that the opening of the ward was but a beginning in the development of a new department which would serve the south-eastern area of Scotland. Hitherto all accident cases have been admitted into the general surgical wards in Edinburgh, but in view of the need for special after-care it is considered that cases of fracture will be more satisfactorily dealt with in a special department.

A Gift from Nepal

On Oct. 26th Lady Sybil Smith opened at the Wingfield-Morris Orthopædic Hospital, Oxford, a ward which is the gift of Lieut.-General Krishna Shumshere Jung, the Nepalese Minister, and his wife. The ward, which is for the treatment of infantile paralysis, has been given as a mark of appreciation of the work of Mr. G. R. Girdlestone, hon. surgeon to the hospital, who went out to India to attend a member of the family.

Population Investigation Committee

Under the chairmanship of Prof. A. M. Carr-Saunders, whose book on "World Population" we reviewed on Sept. 12th, a committee has been appointed to examine the situation created by the decline of the birth-rate in this country and the circumstances that have led to it. The members are :—

Mr. Eardley Holland, F.R.C.P., representing the British
College of Obstetricians; Dr. L. S. Penrose, representing the
Medical Research Council; [illegible] representing
the Royal Economic Society; [illegible] senting
the Society of Medical Office[illegible] Close,
F.R.S., representing the Br[illegible] *Lord*
Horder, F.R.C.P., Mrs. E. M. [illegible] Iuxley,
representing the [illegible] f. L. T.
Hogben, F.R.S.; [illegible] Mr. [illegible] d; Mr.
T. H. Marshall; [illegible] *and Prof.* James Young,
F.R.C.S.

The full-time research secretary will be Mr. D. V. Glass, author of "The Struggle for Population," and the hon. secretary, Dr. C. P. Blacker. Inquiries should be addressed to the secretary of the Population Investigation Committee, 69, Eccleston-square, London, S.W.1.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Capt. E. St. G. S. Goodwin to *Nelson*, and as F.M.O. and Specialist in Hygiene.

Surg. Comdr. J. C. Souter to *Drake*.

Surg. Lt. L. Merrill to *Scarab*.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Lt.-Comdr. D. R. Goodfellow to *Courageous*.

Surg. Lt.-Comdr. J. F. Corr transferred from list 2 of the Severn Div. to list 2 of the Mersey Div.

Surg. Lts. K. E. L. Yuill transferred from list 2 of the Severn Div. to list 2 of the Sussex Div.; R. H. Longmoor promoted to Surg. Lt.-Comdr.; and K. E. O. Ringdahl to *Pembroke* for R.N.B.

Proby. Surg. Lt. W. S. Parker promoted to Surg. Lt.

Proby. Surg. Sub-Lt. L. Foster to *Ramillies*.

J. L. M. Wood entered as Proby. Surg. Lt.

ARMY MEDICAL SERVICES

Col. H. T. Bates, O.B.E., T.D., M.B., Terr. Army, is apptd. Hon. Physician to the King, vice Col. L. D. Bailey, C.B., M.C., T.D., Terr. Army, who has retired.

Col. W. R. Reid, D.S.O., retires on ret. pay, and is granted the hon. rank of Brig.

Col. F. A. McCammon, O.B.E., M.C., late R.A.M.C., having attained the age for retirement, is placed on ret. pay.

Lt.-Col. L. Murphy, D.S.O., from R.A.M.C., to be Col.

Col. F. A. McCammon, Assistant Director of Medical Services in Northern Ireland, has been over 30 years in the R.A.M.C., was an acting lieutenant-colonel in France, and commanded the 11th Convalescent Depôt. Colonel L. Murphy is serving at Bangalore, and joined the R.A.M.C. in 1908. He was in Mesopotamia, and was three times mentioned in dispatches.

ROYAL ARMY MEDICAL CORPS

Maj. H. G. Peake to be Lt.-Col.

TERRITORIAL ARMY

Lts. F. N. N. Roberts, J. L. Warner, J. L. Swanston, and J. G. Scott to be Capts.

G. D. Stilwell (late Offr. Cadet, Univ. of Lond. Contgt. (Med. Unit), Sen. Div., O.T.C.) to be Lt.

TERRITORIAL ARMY RESERVE OF OFFICERS

Capt. W. H. Dowell, from Active List, to be Capt.

ROYAL AIR FORCE

Squadron Leader P. B. L. Potter to R.A.F. Hospital, Aden, for duty as medical officer.

Flight Lts. C. G. Harold to Aircraft Park, Lahore, India; A. Sheehan to No. 2 (Indian Wing) Station, Risalpur, India.

Dental Branch.—Flying Offrs. C. H. Beamish and E. Martin to No. 1 School of Technical Training (Apprentices), Halton; L. C. Bellsham-Revell to Air Armament School, Eastchurch; and A. C. Wilkie to Home Aircraft Depôt, Henlow. Flight Lt. K. G. Swiss to R.A.F. General Hospital, Hinaidi, Iraq.

INDIAN MEDICAL SERVICE

Lt.-Col. K. Comyn, R.A.M.C., appointed officiating Assistant Director, Eastern Command Headquarters in place of Lt.-Col. J. J. D. Roche, who has vacated.

Majs. to be Lt.-Cols.: J. S. Galvin, A. M. V. Hesterlow, and J. R. Kochhar.

Capt. J. D. Gray resigns his commn.

Indian Medical Department.—Lt. (Sen. Asst. Surg.) C. P. V. Shunker retires.

COLONIAL MEDICAL SERVICE

Dr. D. K. Cowan has been appointed Medical Officer, Falkland Islands; Miss F. A. Craig, M.B., Ch.B., Dr. T. A. Divine, and Dr. A. Marshall have been appointed Medical Officers, Malaya; Dr. G. F. Murray, Medical Officer, Uganda; and Dr. W. Serle, Medical Officer, West Africa. Dr. C. E. Bevan becomes District Medical Officer, Cyprus; and Dr. W. J. McClintock, Assistant Director of Medical Services, Gold Coast.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, Nov. 17th.

General Meeting of Fellows. 5.30 P.M.

Pathology. 8 P.M. for 8.30 P.M. (Pathological Department, St. Bartholomew's Hospital, E.C.), Mervyn Gordon: 1. Elementary Bodies. G. A. Harrison and H. E. Archer: 2. Application to Clinical Pathology of (*a*) the Reversion Spectroscope, (*b*) the Lovibond Colorimeter. L. P. Garrod: 3. Bacterium Melaninogenicum. 4. Giant Colonies of *S. actinomyces*. A. W. Spence: 5. Inhibition of Thyrotropic Action of Pituitary by Anti-thyrotropic Serum. A. H. T. Robb-Smith: 6. Experiments on the Nature of the Pulmonary Alveolar Lining and the Alveolar Phagocyte. 7. Specimens from Cases of Reticulo-sarcoma. R. Bodley Scott and A. H. T. Robb-Smith: 8. Case of Lymphoid Follicular Reticulosis. 9. Case of Marchiafava-Micheli Disease. R. G. Macfarlane: 10. Experiments on Clot Retraction. 11. Qualitative Changes in Blood Proteins after Operation. H. A. Magnus: 12. Plasmocytoma of Sacrum. 13. Adamantinoma of Pituitary. 14. Multiple Necrosis of Spleen. 15. Recent Additions to the Museum. G. Hadfield: 16. Uses of "Polaroid." in Microscopy. R. Bodley Scott: 17. Sternal Puncture Preparations. R. Klaber: 18. Unusual Skin Sections.

THURSDAY.

Dermatology. 5 P.M. (Cases at 4 P.M.) Dr. H. W. Barber and Dr. P. M. F. Bishop: 1. Keratoderma Climactericum (Haxthausen) Treated with Œstrin. Dr. H. Semon: 2. Pseudo-pelade. 3. Dermatomyositis. Dr. P. R. Evans (introduced by Dr. F. Parkes Weber): 4. Dermatomyositis. Dr. F. Parkes Weber and Dr. W. Freudenthal: 5. Glomus Tumour (Masson). Dr. J. H. Twiston Davies: 6. Lymphangioma. Mr. H. Corsi: 7. Loss of Nails in Lichen Planus. Dr. G. Bamber: 8. Granuloma Annulare. Dr. R. T. Brain: 9. Keratosis Punctata. 10. Pseudoxanthoma Elasticum. Dr. J. E. M. Wigley: 11. Pityriasis Rubra Pilaris. Dr. A. D. K. Peters: 12. Angioma Serpiginosum.

Neurology. 8.30 P.M. Dr. D. E. Denny-Brown: The Experimental Production of Spasticity. Dr. J. H. Hunt: Raynaud's Phenomenon in Workmen Using Vibrating Tools.

FRIDAY.

Physical Medicine. 5 P.M. Dr. E. P. Cumberbatch and Dr. H. J. Taylor: Short-wave Therapy. Sir Leonard Hill, F.R.S., and Dr. H. J. Taylor: Demonstration of Physiological Action. Dr. C. B. Heald, Dr. Justina Wilson, Dr. Albert Eidinow, and Dr. P. Bauwens will also speak.

Obstetrics and Gynæcology. 8 P.M. Prof. E. C. Dodds and Dr. H. Gardiner-Hill: The Present Position of Hormones in Obstetrics and Gynæcology. Dr. P. M. F. Bishop, Mr. T. N. A. Jeffcoate, and Mr. T. N. MacGregor will also speak.

Radiology. 8.15 P.M. Prof. Hans Holfelder: The Management of Advanced Malignancies. Dr. N. S. Finzi and Dr. J. Struthers Fulton will also speak.

BRITISH INSTITUTE OF RADIOLOGY, 32, Welbeck-street, W.

Medical Section.

FRIDAY, Nov. 20th.—11 A.M., Visit to the X Ray Department of the Brompton Hospital for Consumption, S.W. 5 P.M., Case Demonstration and Discussion.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

THURSDAY, Nov. 19th.—8.15 P.M. (Hospital for Tropical Diseases, Gordon-street, W.C.), Dr. G. Carmichael Low, Prof. R. T. Leiper, F.R.S., Dr. Philip Manson-Bahr, Major H. C. Brown, Dr. C. C. Chesterman, and Dr. N. Hamilton Fairley: Demonstrations.

ROYAL MICROSCOPICAL SOCIETY.

WEDNESDAY, Nov. 18th.—5.30 P.M. (B.M.A. House, Tavistock-square, W.C.), Mr. J. E. Barnard, F.R.S., and Mr. F. V. Welch: Microscopy with Ultra-violet Light—a Simplification of Method.

SOCIETY OF MEDICAL OFFICERS OF HEALTH, 1, Thornhaugh-street, W.C.

THURSDAY, Nov. 19th.—11 A.M., Annual Conference of the Central Council for Health Education.

TUBERCULOSIS ASSOCIATION.

FRIDAY, Nov. 20th.—5.15 P.M. (Manson House, 26, Portland-place, W.), Dr. S. Roodhouse Gloyne: From Consumption to Tuberculosis—A Study of the Disease, Past and Present. (Presidential Address.) 8.15 P.M., Mr. G. A. Mason and Dr. J. L. Livingstone: The Treatment of Pulmonary Tuberculosis by Thoracoplasty.

EUGENICS SOCIETY.

TUESDAY, Nov. 17th.—5.15 P.M. (Rooms of the Linnean Society, Burlington House, W.), Mr. W. T. J. Gun: The Heredity of the Royal Caste.

HUNTERIAN SOCIETY.

Monday, Nov. 16th.—9 P.M. (Cutlers' Hall, Warwick-lane, E.C.), Dr. G. Roche Lynch, Canon Anson, Mr. Gilbert Ryle, Sir Walter Langdon-Brown, and Dr. C. Killick Millard: That the Practice of Voluntary Euthanasia would be Unjustifiable.

CHELSEA CLINICAL SOCIETY.

Tuesday, Nov. 17th.—8.30 P.M. (Hotel Rémbrandt, Thurloe-place, S.W.), Mr. H. J. Barton-Chapple, B.Sc.: *Television.*

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, W.

Thursday, Nov. 19th.—5 P.M., Sir Robert McCarrison: Adventures in Research. David Lloyd Roberts *lecture.)*

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

UNIVERSITY OF LONDON.

Monday, Nov. 16th.—5 P.M. (University College, W.C.), Dr. Phyllis Tookey Kerridge: Physiology of Hearing and Speech. (First of four lectures.)

CHADWICK PUBLIC LECTURE.

Friday, Nov. 20th.—8 P.M. (Town Hall, Gateshead), Mr. *Lionel Pearson, F.R.I.B.A.: Modern Hospital Con*struction.

INSTITUTE OF HYGIENE, 28, Portland-place, W.

Wednesday, Nov. 18th.—3.30 P.M., Dr. Macdonald Critchley: Climate and the Nervous System.

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane-road, W.

Monday, Nov. 16th.—2.15 P.M., Dr. Duncan White: Radiological Demonstration. 2.30 P.M., Dr. R. D. Lawrence: Diabetes and Diseases of Pancreas.

Tuesday.—2 P.M., Prof. E. H. Kettle, F.R.S.: Pathological Demonstration.

Wednesday.—Noon, clinical and pathological conference (medical). 2.30 P.M., clinical and pathological conference (surgical). 4.30 P.M., Prof. S. P. Bedson, F.R.S.: Virus Diseases.

Thursday.—3.30 P.M., Mr. Eardley Holland: Hæmorrhage of Late Pregnancy.

Friday.—2 P.M., operative obstetrics. 2.30 P.M., Prof. John Fraser: Acute Surgical Infections of Bone. 3 P.M., department of gynæcology, pathological demonstration.

Daily, 10 A.M. to 4 P.M., medical clinics, surgical clinics or operations, obstetrical and gynæcological clinics or operations.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.

Monday, Nov. 16th.—10 A.M., skin clinic. 11 A.M., surgical wards. 2 P.M., operations, surgical and gynæcological wards, medical, surgical, and gynæcological clinics. 4.15 P.M., Mr. Green-Armytage: Salpingograms in Diagnosis and Prognosis.

Tuesday.—10 A.M., medical wards. 11 A.M., surgical wards. 2 P.M., operations, medical, surgical and throat clinics.

Wednesday.—10 A.M., children's ward and clinic. 11 A.M., medical wards. 2 P.M., gynæcological operations, medical, surgical, and eye clinics.

Thursday.—10 A.M., neurological and gynæcological clinics. Noon, fracture clinic. 2 P.M., operation, medical, surgical, genito-urinary, and eye clinics. *4.15 P.M., venereal diseases.*

Friday.—10 A.M., medical wards, skin clinic. Noon, lecture on treatment. 2 P.M., operations, medical, surgical, and throat clinics. 4.15 P.M., Mr. Grant Batchelor: *lecture.*

Saturday.—10 A.M., children's and surgical clinics. 11 A.M., medical wards.

The lectures at 4.15 P.M. are open to all medical practitioners without fee.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

Monday, Nov. 16th, to Sunday, Nov. 22nd.—St. John's Hospital, Leicester-square, W.C., afternoon course in dermatology.—Infants Hospital, Vincent-square, S.W., Sat. and Sun., course in children's diseases.

NATIONAL HOSPITAL, Queen-square, W.C.

Monday, Nov. 16th.—3.30 P.M., Dr. Hinds Howell: The Meninges and Cerebro-spinal Fluid.

Tuesday.—3.30 P.M., Dr. Critchley: Aphasia, Apraxia, &c.

Wednesday.—3.30 P.M., Dr. Kinnier Wilson: Clinical Demonstration.

Thursday.—3.30 P.M., Dr. Riddoch: Epilepsy and its Variants.

Friday.—3.30 P.M., Dr. Purdon Martin: The Cranial Nerves.

Out-patient clinic daily at 2 P.M.

LONDON SCHOOL OF DERMATOLOGY, 5, Lisle-street, W.C.

Tuesday, Nov. 17th.—5 P.M., Dr. W. N. Goldsmith: Infantile Eczema and Papular Urticaria.

Wednesday.—5 P.M., Dr. I. Muende: Histopathology of New Growths of the Skin. (Chesterfield lectures.)

HOSPITAL FOR SICK CHILDREN Great Ormond-street, W.C.

Wednesday, Nov. 18th.—2 P.M., Dr. R. S. Frew: Cœliac Disease. 3 P.M., Dr. R. T. Brain: Skin Diseases of Infancy.

Out-patient clinics daily at 10 A.M. and ward visits at 2 P.M.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

Friday, Nov. 20th.—4 P.M., Mr. A. Lowndes Yates: The Treatment of *Nasal Catarrh.*

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION.

Wednesday, Nov. 18th.—4 P.M. (St. James's *Hospital* Ouseley-road, S.W.), Mr. W. C. Gissane: Traumatic Surgery.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.

Wednesday, Nov. 18th.—4 P.M., Dr. T. F. Cotton: Heart Failure and its Treatment.

ST. MARY'S HOSPITAL, W.

Thursday, Nov. 19th.—5 P.M., Dr. G. O. Barber: Preventive Medicine and its Place with the General Practitioner. (General Practice VII.)

*ST. JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDI*CINE, Ranelagh-road, S.W.

Friday, Nov. 20th.—Dr. A. Cawadias: The Rheumatic Diseases in Relation to Endocrine and Metabolic Disturbances.

ST. PAUL'S HOSPITAL, Endell-street, W.C.

Wednesday, Nov. 18th.—4.30 P.M., Mr. Stanford Cade: Radium in Carcinoma of the Prostate.

MANCHESTER ROYAL INFIRMARY.

Tuesday, Nov. 17th.—4.15 P.M., Dr. William Brockbank: Pulmonary Suppuration.

Friday, Nov. 20th.—4.15 P.M., Mr. J. P. Buckley: Demonstration of Surgical Cases.

ANCOATS HOSPITAL, Manchester.

Thursday, Nov. 19th.—4.15 P.M., Dr. Bailey: Anomalies of Menstruation.

MANCHESTER HOSPITAL FOR CONSUMPTION, Deansgate.

Wednesday, Nov. 18th.—4.30 P.M., Mr. E. S. Burt Hamilton: Lupus of the Nose and Throat.

LEEDS GENERAL INFIRMARY.

Tuesday, Nov. 17th.—3.30 P.M., Mr. Black: Exophthalmos.

LEEDS PUBLIC DISPENSARY.

Wednesday, Nov. 18th.—4 P.M., Mr. A. D. Sharp: Demonstration of Tonsil Removal by Dissection.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.

Wednesday, Nov. 18th.—4.15 P.M. (Royal Hospital for Sick Children), Prof. G. B. Fleming: The Factors Influencing Growth and Development in Infancy and Childhood.

Births, Marriages, and Deaths

BIRTHS

Andrews.—On Oct. 31st, at Lyme Regis, the wife of Dr. Ronald Andrews, of a son.

Black.—On Oct. 31st, the wife of Dr. Charles Black, of Brighton, of a son.

Buncombe.—On Nov. 3rd, at Norwich, the wife of Dr. G. H. Buncombe, of Gorleston, of a daughter.

Gimblett.—*On Nov. 4th, at Welbeck-street, the* wife of Mr. Charles Leonard Gimblett, F.R.C.S. Eng., of Devonshire-place, W., of a son.

Moore.—On Nov. 4th, at Beckenham, the wife of Dr. J. K. Moore, of a daughter.

Morley.—On Nov. 5th, at Welbeck-street, W., the wife of Dr. Henry Seaward Morley, of Midhurst, Sussex, of a son.

O'Regan.—On Nov. 7th, at Devonshire-place, W., the wife of Dr. M. O'Regan, of a son.

Spoor.—On Nov. 8th, at the Middlesex Hospital, W., the wife of Dr. W. H. Spoor, Downderry, Cornwall, of a daughter.

Wilde.—On Nov. 8th, at Epsom, the wife of Dr. O. G. Wilde, of a son.

Willes.—On Oct. 31st, the wife of Surg. Lt.-Commander Charles F. Willes, R.N., retd., of Abbots Leigh, near Bristol, of a son.

Wyllie.—On Nov. 3rd, at Bentinck-street, the wife of *Dr.* H. A. Wyllie, of Portland-place, of a son.

MARRIAGES

Riekie—Smith.—On Oct. 31st, at St. Peter's, Vere-street, London, Cecil Arthur Riekie, to Beatrice Gwendoline Smith, F.R.C.S.

DEATHS

Berry.—On Nov. 1st, at Zurich, Thomas Percival Berry, M.D. Lond., late chief medical officer, G.W.R. Medical Fund (Swindon), aged 61.

Blenkinsop.—On Nov. 3rd, at Frensham, Surrey, Major-General Sir Alfred Percy Blenkinsop, K.C.B., C.M.G., M.R.C.S. Eng., aged 71.

Elliot.—On Nov. 9th, at Barnet, Robert Henry Elliot, M.D. Lond., F.R.C.S. Eng., D.P.H., lieut-colonel, I.M.S. retd.

Hawkes.—On Nov. 6th, at Wallasey, James Leonard Hawkes, M.B. Manch., M.D. Liverp.

Macdonald.—On Nov. 6th, at All Saints' Hospital, London, Herman Arthur Macdonald, M.B.E., M.D. Edin., B.Sc., late of Dover and Birkenhead.

Penman.—*On Nov. 7th, at Wibsey, Bradford,* Yorkshire, David Penman, M.B. Glasg.

Sadler.—On Nov. 7th, at Barnsley, Yorkshire, Francis Joseph Sadler, M.D. Oxon., aged 69.

Webster.—*On Nov. 5th, at Toronto, Prof.* Albert Edward Webster, M.D., M.D.S., LL.B., honorary dean, Faculty of Dentistry, University of Toronto.

Willoughby.—On Nov. 4th, at St. Bartholomew's Hospita E.C., W. M. Willoughby, M.D. Camb., D.P.H., medic officer of health for the City of London.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths

NOTES, COMMENTS, AND ABSTRACTS

MEDICAL RELIEF FOR SPAIN

THE two ambulance units sent to Spain from this country are in urgent need of support. Their organisers have gone ahead with their work—for it clearly cannot wait—and have counted on the British public to supply the means. There can be few readers of the newspapers who have not felt some wish to mitigate the distresses of the Spanish people, and we take this opportunity of stating once more that subscriptions will be gratefully received by the Spanish Medical Aid Committee (24, New Oxford-street, London, W.C.1) and by the Scottish Ambulance Unit for Spain (5, Cleveden-road, Glasgow). Relief funds are also being distributed through the International Red Cross, and money for this purpose may be sent to the British Red Cross Society (14, Grosvenor-crescent, S.W.). A further appeal reaches us from the Catholic Bishops' Committee for the Relief of Spanish Distress (38, Eccleston-square, S.W.1) who have already sent out a motor ambulance and lorry with equipment for operations. "The state of the wounded," they say, "is appalling; and we cannot believe that our fellow-countrymen, whatever their creed, can be indifferent to the call of mercy."

A MUSEUM OF ELECTROPATHOLOGY

THE President of the Austrian State, Wilhelm Miklas, presided at the inauguration festival on Oct. 29th of Prof. Stefan Jellinek's museum, and those present included medical men from England, France, Germany, Czechoslovakia, Poland, Japan, and other countries, together with representatives of the services and of engineers and workmen. The working electricians of Vienna had collected a thousand shillings and presented them to Prof. Jellinek in appreciation of his work for their industry.

The museum, which was briefly described in our issue of April 4th last, is original in type, and shows the practical application of electropathology to daily life. For example, there are models and drawings illustrating how treatment should be given to the victim of electric shock, how the hygienist should prevent such an accident, and how the expert witness can judge whether the accident was due to murder, suicide, incendiarism, or lightning. For the technologist and engineer, the problem of the construction and danger of the ordinary electrical lamp are considered, and electrical conductivity of various materials (notably concrete) is set forth.

The sixteen rooms comprising the museum form part of the university, and are more or less under its supervision. In 36 years' work Prof. Jellinek has brought together a collection of specimens unique and invaluable. A large section is devoted to industrial accidents and their treatment, and the value of lumbar puncture is emphasised by a model showing the needle in situ. Other specimens illustrate his theory of electricity, emphasising its mechanical action as of prime importance. Not the least interesting exhibits, especially from the point of view of the medical jurist, are the markings of the electric discharge, both on organic substances—such as muscle-fibre, in which the presence of electricity was proved by a spiral marking—and in inorganic material. An example of this latter was an iron portion of an aeroplane which formed part of a machine which had come down in flames. The catastrophe was attributed to the fault of the pilot, but the microscope revealed the typical spiral marking of the electrical current and the man's innocence was established.

In addition to the museum rooms, there are also a lecture theatre, a medical and technical laboratory, and an ambulance room for casualties. One room which deserves special attention is that containing over a hundred water-colour drawings of specimens, and over a hundred articles of everyday life, illustrating what can be termed almost a new science, "Spurenkunde der Elektrizität," on which Prof. Jellinek lectured before the Royal Society of Edinburgh last July. This collection of thousands of specimens (as was said in one of the speeches), forming as it does part of the cultural work in Vienna medical school, "is an asset for the whole world."

FRESH AIR INSTEAD OF OXYGEN

MAKESHIFTS are often more exciting, nearly as efficient, and much less expensive than the genuine article. J. E. Crewe of Rochester, Minnesota, has devised a simple apparatus for supplying patients with gently moving outside air as a substitute for oxygen when this is not to be had (Jour. Amer. Med. Assoc., Oct. 3rd, 1936, p. 1125). It consists essentially of a small blower and a length of 2-inch piping. The electrically operated blower at one flexible end of the pipe is attached to a hole in a board of adjustable length which can be fitted snugly beneath a raised window. The other flexible end of the pipe can be fixed near the patient's face. The middle portion of the pipe, rigid but telescopic, is slung through a pulley to the ceiling. The apparatus has proved useful for patients in crowded and overheated rooms. If electricity is not available to operate the blower, the wind or a stream of water can be used instead.

AN OBSCURE CASE OF VERTIGO

M. L. J. has under his care an otherwise healthy woman of 54 who has intense attacks of vertigo of short duration. She has been examined by specialists who have been unable to point to the cause of these paroxysms. They do not seem due to water retention, labyrinthine disease, or Ménière's disease. There are no signs of organic nervous disorder, nor is there any neurotic tendency. No septic foci can be found and the digestive functions are good. The whole range of orthodox remedies have been tried without effect. One notable feature of the attacks is that they are induced by sudden movement of the head or by postural change; attacks have however come on in the early morning on waking. Suggestions for treatment would be welcomed from any who have met with similar cases.

AN EMANCIPIST

MANY good stories, both factual and fictitious, have been written about doctors who have become famous or notorious for extra-medical adventures or achievements. The hero of "a musical drama" in three acts recently published [1] is William Redfern, assistant surgeon on H.M.S. *Standard* in 1797, who at the age of 19 was found guilty of mutiny and sentenced by court martial to be "shot to death." His only crime was that he had dared to criticise the iniquitous conditions of life on the lower deck and, in a heated argument with his captain, had expressed sympathy with the mutineers of the *Nore*. His sentence was commuted to one of penal servitude and, after four years at Dartmoor, he was transported at his own request to New South Wales. On the voyage out on the *Minorca* he was detailed to assist the surgeon, and as a result of good work on Norfolk Island and at Sydney he was granted an absolute free pardon by the Prince Regent on the recommendation of Governor King. As an emancipist, he superintended the work of the hospital at Sydney, developed a considerable private practice, and became a person of consequence, being granted the first medical diploma ever awarded in Australia. The action of this play, divided into 13 scenes, opens with the quarrel between Redfern and Captain Hawkins, and ends happily with the complete acceptance of the emancipist into the best society of New South Wales. The plot unfolds well enough but the play is rather too long, the last act especially being unduly protracted. Much of the dialogue will be perhaps too stilted and artless for the modern taste, but the story, suitably produced, might make an excellent film in the "Bounty" tradition.

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[1] The Emancipist. An historical drama in three acts. By Major-Gen. John Macquarie Antill, C.B., C.M.G., and his daughter Rose Antill de Warren. Sydney: Angus and Robertson Ltd.; London: Williams and Norgate Ltd. 1936. Pp. 165. 3s. 6d.

PHYSIOLOGY AND PATHOLOGY OF WOMAN

WE are all liable to be asked to recommend books on various aspects of physiology and pathology suitable for the lay public. A clearly written little book for the intelligent non-medical woman seeking information, accurate but neither technical nor profound, about the workings of her own body has recently been issued.[1] The factors which constitute "femaleness" are described in the opening chapter. Menstruation in all its aspects is freely considered. The reproductive apparatus, the endocrine system, the menopause, sterility, ovulation, the "safe period," leucorrhœa, and genital cancer are other matters discussed. The author, who rightly describes himself as "an old-fashioned fellow," is, perhaps, least happy in the final chapter which deals with the sex life of woman, and which lacks the candour nowadays considered necessary for helpful discussion of this subject.

MISSION HOSPITALS IN CHINA

THESE institutions are well served by the Institute of Hospital Technology at Hankow. The institute is under the auspices of the missionary section of the Chinese Medical Association, and is housed in the Union Hospital at Hankow. Hospitals send students, men and women, for six and twelve-month courses in laboratory work, pharmacy, anæsthesia, and X ray, and, after training, these men and women go back to their own hospitals equipped to undertake much of the work which, in better staffed institutions, would be done by fully qualified doctors. The scheme, which is a great boon to understaffed hospitals, has worked well, and Miss Hilda Waddington, the dean and registrar of the institute, reports that 30 missionary societies have sent students to the institute for training.

IN the notice of the London Medical Exhibition in THE LANCET of Oct. 31st (p. 1066) the statement that Scott's Brand Emulsion of cod-liver oil contains hyposulphites of lime and soda should of course read *hypophosphites* of lime and soda.

UNWANTED INDICES to "THE LANCET."—Any reader who has an unbound copy not in use of the index for any of the years 1932, 1933, 1934 (Vols. I. and II.), and 1935 (Vol. I.) would greatly oblige by posting the same to the Editor of THE LANCET, 7, Adam-street, Adelphi, London, W.C.2.

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[1] The Woman Asks the Doctor. By Emil Novak, M.D., D.Sc. London: Christophers. 1936. Pp. 191. 5s.

Vacancies

For further information refer to the advertisement columns

All Saints' Hospital, Austral-street, West-square, S.E.—Hon. Surg. Reg. Also Res. H.S., at rate of £100.

Altrincham General Hospital.—Jun. H.S., at rate of £120.

Ayr County Council.—Obstetrician, £700.

Bath, Royal United Hospital.—Res. O., £150.

Birmingham General Hospital.—Res. Surg. O. Also Med. Reg. and Res. M.O., £180 and £155 respectively.

Birmingham, Selly Oak Hospital.—Res. Ear, Nose, and Throat Surgeon, £700. Also Jun. M.O.'s, each at rate of £200.

Brighton, Royal Alexandra Hospital for Sick Children.—H.S., £120.

Brighton, Royal Sussex County Hospital.—H.S. and Cas. H.S., £150 and £120 respectively. Also Hon. Med. Reg.

Cardiff Royal Infirmary, &c.—Hon. Dermatologist and M.O. to V.D. Centre, £250.

Carlisle, Cumberland Infirmary.—Hon. Surgeon.

City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, E.—Res. M.O., £350. Also H.P., at rate of £100.

Dudley, Guest Hospital.—Hon. Asst. Surgeon to Ear, Nose, and Throat Dept.

Eastbourne, Royal Eye Hospital, Pevensey-road.—H.S., £100.

East Ham Memorial Hospital, Shrewsbury-road, E.—Hon. Dental Surgeon. Also H.S. to Spec. Depts., and Cas. O., at rate of £120.

Edgware, Redhill County Hospital.—Jun. Res. Asst. M.O., at rate of £250.

Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—H.P., First and Second H.S., also Obstet. Asst., each at rate of £50.

Evelina Hospital for Sick Children, Southwark Bridge-road, S.E.—H.S., at rate of £120.

Farringdon General Dispensary.—Hon. Surgeon for Throat, Nose, and Ear Clinic.

Gloucestershire County Council.—M.O., £800.

Gloucestershire Royal Infirmary, &c.—H.P., at rate of £150.

Guy's Hospital, S.E.—Clin. Asst. to Radiology Dept., £250.

Halifax County Borough.—Consultant Obstetrician, 5 gns. and 4 gns.

Hampstead General and N.W. London Hospital, Haverstock Hill, N.W.—Cas. M.O. and Cas. Surg. O. for Out-patient Dept., each at rate of £100.

Hendon Borough.—Asst. M.O.H. and Asst. School M.O., £600.

Hospital for Sick Children, Great Ormond-street, W.C.—Surgical Reg., £200. Res. H.P. and Res. H.S., each at rate of £100. Also Res. Anæsthetist Reg., at rate of £150.

Hospital of St. John and St. Elizabeth, 60, Grove End-road, N.W.—Anæsthetist.

Huddersfield Royal Infirmary.—H.S. to Eye, Ear, and Obstet. Dept., at rate of £150.

Isleworth, West Middlesex County Hospital.—Asst. M.O., £400.

Lancaster at rate of £130.

Leeds Ed 100l M.O., £500.

London *Ormond-street, W.C.*—H.S. Also Gynæcological H.S., each at rate of £100.

London Hospital, E.—Surg. First Asst. and Reg., £300. Also Asst. Surgeon.

London (R.F.H.) School of Medicine for Women, 8, Hunter-street, W.C.—Demonstrator in Physiology. Also Curator of t n.

London Duveen Studentship, £450.

Manches —Jun. H.S., £120.

Manor I *Green, N.W.*—Jun. M.O., £200.

Margate *spital.*—H.S., at rate of £200.

Middlesbrough, North Riding Infirmary.—Sen. H.S., £200.

Mildmay Mission Hospital, Austin-street, Bethnal Green, E.—Asst. Cas. O., at rate of £125.

Miller General Hospital, Greenwich-road, S.E.—Cas. O., at rate of £150. Also two H.P.'s and H.S., each at rate of £100.

Northwood, Middlesex, Mount Vernon Hospital.—H.S., £150.

Oxford, Pembroke College.—Theodore Williams Medical Scholarship, £100.

Paddington Green Children's Hospital, W.—Hon. Phys. to Out-patients.

Preston and County of Lancaster Royal Infirmary.—Asst. Pathologist, £650.

Prince of Wales's General Hospital, N.—Hon. Clin. Assts. to Spec. Depts.

Princess Louise Kensington Hospital for Children, St. Quintin-avenue, W.—Hon. Asst. Physician.

Queen Mary's Hospital for the East End, E.—Hon. Asst. Phys. for Children's Dept. Res. M.O. and two Cas. and Out-patients O.'s, each at rate of £150. Also H.S. and H.P.'s to Spec. Depts., each at rate of £120.

Redhill, Surrey, Royal Earlswood Institution.—Jun. Asst. M.O., at rate of £250.

Rochdale Infirmary and Dispensary.—H.P., £150.

Royal Naval Medical Service.—M.O.'s.

Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—H.S., at rate of £100. Also Hon. Clin. Asst.

St. *l, E.C.*—Chief Asst. in X Ray Diag-

St. *Vomen and Children, Plaistow, E.*— Also Hon. Ophthalmic Surgeon.

St. Med. Reg., £200. Also Cas. H.P., at rate of £150.

St. Peter's Hospital for Stone, Henrietta-street, W.C.—Physician. Also 4th Anæsthetist, £25.

Salisbury Gener t rate of £125.

Sheffield Royal Clin. Asst. to Ear, Nose, and Throat

Southampton, Royal South Hants Hospital.—Cas. O. and two H.S.'s, each at rate of £150.

South London Hospital for Women, Clapham Common, S.W.—H.P. and H.S., each at rate of £100.

Stepney Metropolitan Borough.—M.O.H. and Chief Administrative Tuber. O., £1200.

Sunderland Royal Infirmary.—Two H.S.'s and H.P., each £120.

Tunbridge Wells, Kent and Sussex Hospital.—H.P., Sen. H.S., H.S. to Spec. Depts., and H.S. and Cas. O., each at rate of £150.

University College Hospital, W.C.—Registrar of the Royal Ear Hospital, £250.

Watford and District Peace Memorial Hospital.—H.S. and H.P., each at rate of £150.

Welwyn Garden City Urban District.—M.O.H., £800.

Western Ophthalmic Hospital, Marylebone-road, N.W.—Sen. Res. H.S. and Jun. H.S., at rate of £150 and £100 respectively.

Willesden General Hospital, Harlesden-road, N.W.—Med. Reg., at rate of £50.

The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Cricklade (Wilts), Dartmouth (Devon), Yealmpton (Devon), Heckington (Lincs), and Shere (Surrey).

ADDRESSES AND ORIGINAL ARTICLES

BRITISH DYSENTERIC INFECTIONS*

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History of Dysentery in Great Britain

SCATTERED references to dysentery or bloody flux are found in the chronicles of the fourteenth, fifteenth, and sixteenth centuries. In the early part of the seventeenth century spotted fever, bloody flux, and small-pox were the prevalent epidemics among the rich as well as the poor in England. We owe the first clinical description of dysentery in England to Sydenham, who observed the epidemics which occurred in London in 1669, 1670, and 1671. It set in at the beginning of the autumn and declined at the approach of winter. The motions were frequent, slimy, often streaked with blood, and attended with griping. Though not infrequently fatal to adults, it was much more so to old men, but was remarkably harmless in infants.

Throughout the eighteenth century there were many epidemics in England, the incidence and mortality varying greatly from year to year. Mark Akenside had more than 130 cases in his wards at St. Thomas's Hospital between 1758 and 1762. It attacked the poor more than the rich, children more than adults, and convalescents from acute fevers and lying-in women were specially liable to be affected.

Sporadic cases continued to appear every autumn and to disappear with the frosty weather of November and December until 1800, when there was again an extensive epidemic in London. The only great dysenteric epidemics of the nineteenth century followed the hot summers of 1825 and 1826, the latter being probably the hottest and driest of the century. Throughout the nineteenth century dysentery continued to be common in asylums, prisons, workhouses, and barracks, and occasional small epidemics were observed in villages.

There is no doubt that English dysentery was always of the bacillary type. Thus William Baly, physician to Milbank Prison, in his Goulstonian lecture for 1847 notes that among the many hundreds of cases of dysentery he had observed in the prison during the previous seven years there was not one complicated with hepatic abscess, which was a common complication of dysentery in India, where future research was to prove that amœbic dysentery, which is the more common variety in India, is the only form which gives rise to hepatitis.

Actual proof of the nature of the British infections could not, however, be obtained until the researches of Shiga, Kruse, and Flexner between 1898 and 1902 made it possible to identify the different types of dysentery bacilli, and in 1904 Eyre obtained for the first time bacteriological evidence that the dysentery which occurred in English asylums was caused by infection with the *B. dysenteriæ*. In 1912 Nabarro isolated the dysentery bacillus from a child who had been attending the Great Ormond-street Hospital for many years as a case of recurrent colitis. Since then he and others have found that many cases of summer diarrhœa in small children, as well as cases diagnosed as chronic colitis, are caused by Flexner's bacillus.

Between 1904 and 1914 hardly a year passed without the discovery of one or more mild dysentery epidemics in towns, villages, and institutions, the causal organisms being classified simply as Shiga's or Flexner's strain of *B. dysenteriæ*. The work of Andrewes and Inman, Sonne, and others during the war made it possible to classify dysenteric infections with much greater accuracy by the use of highly specific agglutinating sera. At the present time four main types are recognised—Flexner and atypical Flexner (Sonne) strains and Shiga and atypical Shiga (Schmitz) strains. The first two are relatively common, the second two extremely rare in Great Britain.

From 1922 to 1934 between 345 and 924 cases of dysentery were notified each year in England and Wales (Table I.). Of the 763 cases notified in 1934 450, with 44 of the 103 deaths, occurred in mental hospitals. The infection was almost always due to the Flexner or Sonne bacillus.

TABLE I

Number of notified cases of dysentery and deaths in England and Wales since it became a notifiable disease on March 1st, 1919. (The figures include a comparatively small number of cases of amœbic dysentery.)

Year.	Cases.	Deaths.	Year.	Cases.	Deaths.
1919	1657	435	1927	440	95
1920	1353	254	1928	683	155
1921	1223	261	1929	573	98
1922	789	216	1930	538	97
1923	484	149	1931	809	116
1924	388	130	1932	924	133
1925	345	135	1933	783	92
1926	530	142	1934	763	103

Modern bacteriological investigations and the clinical records of the past indicate that the dysentery of Great Britain must always have been predominantly of the Flexner and allied Sonne types, although the occurrence in earlier days of occasional outbreaks of high mortality makes it probable that Shiga infections were not quite as uncommon as now.

Spread of Infection in Great Britain

Rural outbreaks.—Modern public health administration, though very effective in towns, has not succeeded in removing endemic infection from rural districts. Turner has related experiences which show how small villages in agricultural districts, where flies breed freely and sanitary arrangements are primitive, may act as natural reservoirs of bacillary dysentery. The well from which a family drew their water dried up, and water was carried from a neighbouring stream in barrels and emptied into the dried-up well. Soon afterwards several members of the family developed symptoms of acute dysentery and died, and Flexner's bacillus was isolated from their stools. Before long he was called to a neighbouring village of 150 inhabitants to see a man with similar symptoms; in this case Sonne's bacillus was isolated. Ten other cases developed within a week or two. On inquiry it was found that nearly every autumn diarrhœa, often bloody, went through the village, but the inhabitants were so accustomed to it that they did not send for a doctor unless somebody was very ill.

Effect of wars.—From its geographical distribution and the absence of hepatic complications, it is certain that the dysentery which attacked the British army in the Crimea and in the South African War was bacillary. Out of the 30,000 British soldiers who fought in the Crimea 7883 suffered from dysentery, and of these 2143 died; in the South African War there were 1342 deaths among 38,108 cases.

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* Based on addresses to the epidemiological and infectious diseases section of the Congress of Hygiene held at Edinburgh, May 29th, 1936.

In the Great War bacillary dysentery first appeared in epidemic form at Gallipoli in August, 1915, and from 1916 till the end of the war it continued to be a serious source of invaliding in Mesopotamia, Salonika, and Palestine. A milder form developed in France and Flanders in July, 1916, and recurred in the autumn of 1917 and 1918. Its incidence varied between a maximum of 126 cases per 100,000 on the Western front in September, 1916, and 7900 per 100,000 in Mesopotamia in 1916. Moreover, no less than 1 per cent. of all convalescent soldiers returning from the Near East, other than those known to have had dysentery, were found to be Flexner carriers. In the East Shiga and Flexner infections were about equally common, but 85 per cent. of cases in the West were of the Flexner type. The mortality was low in every theatre of the war, the maximum being at Gallipoli, but even there it was only 5 per cent.

It would be natural to expect that the endemic dysentery of Great Britain was reinforced by infected soldiers after the Crimean, South African, and Great Wars. There is good evidence that dysentery did increase in England after the Great War (Table I.). The importation was mainly of the Flexner type, although in the East, the natural home of dysentery, Flexner and Shiga strains are about equally prevalent, for among the 3 per cent. of all patients who contracted dysentery and who became chronic carriers the proportion of Flexner to Shiga infections was about 4 to 1. The Shiga carrier almost invariably remains a relatively sick man, whereas the Flexner carrier is often quite fit, so that the former was likely to be recognised and kept under observation until the infection had died out, whereas the latter was more likely to return home and spread the infection. Immediately after the war a few Shiga infections were recorded; now they have almost disappeared. Until 1925 the percentage of true Flexner strains was about 80, but it has since fallen to about 50, a higher proportion of the cases being of the Sonne type. The temporary increase of Flexner infections was due to a rise in imported cases during the war, the present incidence representing mainly the endemic disease, in which Flexner and Sonne infections are equally common.

To a much smaller extent the same form of importation must continue in times of peace. In the records of the past ten years a surprisingly high percentage of cases of typical Flexner infection can be traced back to someone who has brought the organism from overseas. Thus an ex-soldier from the Near East, originally infected in 1918, caused a local outbreak in England nine years later, and a boy, who over a year previously had clinically recovered from dysentery in Baghdad, started a severe outbreak when he joined a school in England.

Infection from cruises.—Hern (1935) has recently drawn attention to the possible spread of bacillary dysentery in England as a result of the increasing popularity of pleasure cruising. He records the case of a patient who developed severe diarrhœa six days before the end of a fortnight's cruise. The day after landing Flexner's dysentery bacillus was isolated from the stools, which contained abundant blood and pus. In addition to Hern's patient at least a hundred passengers developed diarrhœa. The epidemic broke out about forty-eight hours after sailing and before any port of call had been reached, so that the infection presumably was conveyed to the food by a carrier among the staff who had contracted it during an earlier cruise. As Hern points out, "if we take ten days as the normal average period of infectivity, it follows that only those cases which occurred in the first two days of the epidemic can have been safe neighbours by the time they reached home; of the rest each must have been a potential focus for the start of a fresh outbreak in this country."

Hill (1935) relates his experience of another cruise, in which after leaving Istambul he and others were laid up with an acute attack of dysentery, which confined him to bed till he reached England. A friend was taken ill immediately he reached home and died from dysentery.

From our own observations we are inclined to think that the most frequent source of infection is food taken at ports of call where dysentery is common, and we have seen several patients with severe chronic diarrhœa which developed after an acute attack of food poisoning contracted after a meal on shore. In one case both the *Amœba histolytica* and Flexner's bacillus were found in the stools; the former infection was quickly cured with emetine, but chronic ulcerative colitis, which lasted over three years, developed, although during the last year Flexner's bacillus could no longer be isolated from sigmoidoscopic swabs.

In some boats notices are hung in prominent places warning passengers to drink no water and to eat no raw vegetables or fruit at ports of call. As provisions for shore excursions can always be provided on board, it should be possible to avoid all risk of infection by these simple precautions.

What is British Dysentery?

Epidemic diarrhœa is so common that it is essential to have a clear conception as to what constitutes "dysentery." In this country a purely bacteriological definition will not suffice. To deserve the name of dysentery an infection must be one which is associated, in the severe cases at least, with the passage in the stools of much epithelial debris with pus and blood, derived from acutely inflamed colonic mucous membrane with macroscopic or at least microscopic areas of ulceration.

It is common knowledge that all the bacilli biologically classified as *B. dysenteriæ* (Shiga and Flexner) can produce this type of illness. Can the atypical but allied strains, such as those of Schmitz and Sonne, give rise to conditions deserving the name dysentery and all that it implies in clinical and public health work? We have no doubt that they can. The dysentery produced by these atypical strains is mild and the outbreaks quite localised. But the nature of the disease is essentially the same, and a certain number of severe cases do occur.

Bacteriological research has, however, to some extent brought confusion into the question of the occurrence of dysentery in Great Britain. In pre-bacteriological days the word dysentery was synonymous with "bloody flux," the diagnosis being made when a patient developed diarrhœa with the passage of blood. Nowadays the isolation of a dysenteric organism from the stools and its agglutination by specific agglutinating sera or by the patient's own serum are required before a diagnosis is made. This leads to fallacies of two kinds. In the first place in epidemics of typical bacillary dysentery it is rarely if ever possible to isolate the *B. dysenteriæ* in every case, but no doubt is felt that those patients in whose stools it is not isolated are suffering from bacillary dysentery. It would therefore be logical to assume that a sporadic case with typical symptoms and morbid anatomy might also be true dysentery in spite of failure to isolate a dysenteric bacillus. Secondly it is now known that numerous epidemics of mild diarrhœa, sometimes in villages and sometimes in schools, hospitals, and other institutions, are caused by infection with Sonne's dysenteric bacillus, which is isolated from the stools in these cases, although clinically they may bear no resemblance to classical dysentery or bloody flux.

R. E. Smith (1931) has described an outbreak of gastro-enteritis caused by Sonne's bacillus in a house at Rugby containing 58 boys. Between July 15th and 22nd twenty boys, their housemaster, the cook, and two dormitory maids were affected. Of these eleven had vomited and five others had nausea—presumably caused by gastritis. Twelve had diarrhœa for one to nine days; of these nine passed mucus and only four blood. The Sonne bacillus was found in nine out of eighteen cases investigated—all of the nine having diarrhœa. Of the twenty-one cases only the four who passed blood could be regarded as clinical cases of dysentery, although all were clearly due to infection with the Sonne bacillus. It would seem more logical to describe the epidemic as one of "Sonne gastro-enteritis" than of "Sonne dysentery."

It is not easy to classify the conditions associated with infection by the various other non- or late-lactose fermenting bacilli, which biologically show a distant resemblance to *B. dysenteriæ*. When infecting a previously healthy person, they usually produce nothing more than a gastro-entero-colitis of varying severity, and very rarely a condition of true dysentery or bloody flux. On the other hand, they can often be isolated in large numbers from stools containing blood and pus in cases of ulcerative colitis which are indistinguishable from chronic dysentery. It is difficult to believe that they have no connexion with the inflammatory process, and the question is discussed in a later section of this paper.

We have omitted consideration of amœbic infections, which are occasionally observed in Great Britain, because their inclusion under the term "dysentery" leads to still more confusion, as the only thing common to bacillary and amœbic dysentery is the bloody flux—the morbid anatomy, course, complications, natural distribution, and treatment being entirely different.

Sporadic Acute Dysentery

It is probable that if all cases of acute diarrhœa occurring in England, however short in duration, and especially those in which blood as well as mucus is present in the stools, were examined bacteriologically, bacillary dysentery would be found to be much less rare than is generally believed. Many cases of acute diarrhœa are of such short duration that they are not seen at all by a doctor. In others the stools are not kept for his inspection, and it must be comparatively rare for a general practitioner to consider it worth while putting his patient to the expense of a bacteriological examination of the stools for an attack of diarrhœa which does not last for more than a few days.

One of the few cases of the kind which we have had the opportunity of seeing was in a boy of sixteen at a public school. There were no other cases of diarrhœa and there was no history of recent contact with anybody suffering from a similar complaint. He was seen with Dr. Bradley in 1927 on the morning of the third day of his illness; he had a high temperature, his stools contained large quantities of blood with pus and mucus, and the appearance with the sigmoidoscope was typical of ulcerative colitis. Flexner's bacillus was isolated from a stool passed on the first day. He was given 40 c.cm. of antidysenteric serum intravenously and recovered completely within a fortnight. There has been no recurrence in the eight years which have since elapsed.

In another sporadic case of acute diarrhœa developing without obvious cause and lasting only forty-eight hours, the mucus, which was slightly blood-stained, gave *B. asiaticus* on culture, but a week later the stools were normal and gave only the usual *B. coli communis* and enterococci.

A woman of 23 was sent to New Lodge Clinic on account of chronic dyspepsia dating from an acute attack of abdominal pain with fever, vomiting, and diarrhœa four years before, which was diagnosed as acute appendicitis, although at the operation the appendix was regarded by the surgeon as only part of a widespread inflammation, the whole colon being abnormally red. The dyspepsia proved to be due to achlorhydric gastritis, which was no doubt a sequel of the acute gastritis, which formed a part of the gastro-entero-colitis at the acute onset. Although there had never been any recurrence of diarrhœa, Flexner's bacillus was isolated from the stools. This case is thus another example of an unrecognised attack of an acute dysenteric infection.

It is quite common in ordinary chronic cases of ulcerative colitis to obtain a history of an acute onset with an illness exactly resembling acute dysentery. The first acute attack often lasts only a few days and a doctor may never have been consulted, but the spontaneous recovery is followed by one or more relapses, one of which passes into the chronic condition of ulcerative colitis. When such patients ultimately come into hospital and thorough bacteriological investigations of the stools and sigmoidoscopic swabs are at last carried out, they have generally been ill so long that the original infection has died out or become so attenuated as to escape recognition unless many successive examinations are made.

Chronic Dysentery

In the chronic dysentery of tropical countries the *B. dysenteriæ* can persist for many months in the mucous membrane, though it becomes increasingly difficult to cultivate it from the fæces, and finally it may prove impossible. In the first of the following cases the history was typical of ulcerative colitis, and the sigmoidoscopic appearance of the bowel was quite indistinguishable from that seen with the common type of the disease as it occurs in England; yet the onset in Salonika and the discovery of Flexner's bacillus during the first attack and again from a sigmoidoscopic swab nearly two years later showed that the condition could equally well be regarded as chronic bacillary dysentery. In the other cases a dysenteric organism was isolated at the onset of the illness, but by the time the patients came under observation with symptoms and sigmoidoscopic appearances typical of ulcerative colitis all attempts to isolate it failed. Yet the history would justify a diagnosis of chronic dysentery.

Albert W., aged 35, had an attack of acute dysentery in December, 1918, whilst serving in Salonika. Flexner's bacillus was isolated from his stools. He was discharged from hospital in March, 1919, and sent to England. There was now no blood in his stools, but he still had diarrhœa. In March, 1920, the old symptoms returned. His stools became increasingly frequent and loose, and blood and mucus were invariably present in them. By September he was passing seven stools a day; on Sept. 12th he passed half a pint of bright red blood and was admitted to Guy's Hospital under the care of A. F. H. His stools contained small quantities of semi-liquid fæces with blood, mucus, and pus. He was sigmoidoscoped the day after admission, and innumerable shallow, irregular ulcers were seen. The intervening mucous membrane was swollen and very red, and bled directly it was touched. A swab taken from the surface of an ulcer showed the presence of an aberrant type of Flexner's bacillus. The patient was given intravenous injections of polyvalent antidysenteric serum. In ten days the stools were formed and contained neither blood nor pus; a second sigmoidoscopic examination showed that every ulcer had healed and that the mucous membrane was only very slightly inflamed. A fortnight later all signs of colitis had disappeared.

An officer, aged 55, contracted bacillary dysentery at Gallipoli in June, 1915. Flexner's bacillus was isolated from his stools. Diarrhœa with the passage of blood and pus continued in varying intensity until he came under observation in February, 1920, when numerous cultures of stools and one of a sigmoidoscopic swab failed to grow any pathogenic organism. He was very emaciated and weak. Serum failed to help and he died from exhaustion shortly after the performance of an appendicostomy. Without the history of the onset in Gallipoli and the discovery shortly afterwards of Flexner's bacillus the case would have been regarded from the symptoms and sigmoidoscopic appearance as typical of very severe ulcerative colitis.

A man of 42 had severe diarrhœa in India in 1917. He recovered, but in 1920 he had an attack in England of diarrhœa and passed blood in his stools. From that time till 1936 with short intervals of freedom he had symptoms of ulcerative colitis. In 1926 Flexner's bacillus was isolated from his stools and his blood agglutinated the organism and stock Flexner's bacillus up to 1 in 400. Numerous cultivations from stools and sigmoidoscopic swabs since then have failed to reveal any pathogenic organism, and his blood ceased to agglutinate Flexner's bacillus in 1928.

Bockus (1936) records a case of typical ulcerative colitis with polyposis following an attack of acute bacillary dysentery, in which Flexner's bacillus was isolated from the stools and serum agglutination was positive. Six months after the onset, when the patient was first seen by Bockus, repeated cultures and agglutination tests were negative.

Ulcerative Colitis and Bacillary Dysentery

In a description of the morbid anatomy of sporadic cases of chronic bloody flux occurring in England, Wilks in 1875 referred to the disease as ulcerative colitis, a name which has been adopted in Europe and America for this condition, but he pointed out that it was anatomically indistinguishable from dysentery. Saundby in 1906 and Hawkins in 1909 first suggested that ulcerative colitis as it occurs in England is a form of chronic bacillary dysentery.

During the war one of us (A. F. H.) had frequent opportunities at Lemnos and at Salonika of sigmoidoscoping patients with dysentery. It was recognised at once that amœbic dysentery presented a characteristic picture which bore no resemblance to that of bacillary dysentery, but that it was impossible to distinguish the latter from the ulcerative colitis with which we were already familiar in England. Prof. Klemperer tells us that he has come to the same conclusion from his large experience of autopsies of bacillary dysentery in the Austrian army during the war and of ulcerative colitis in New York in more recent years. He is convinced that the two diseases have the same origin. In his recent Lettsomian lectures Manson-Bahr admits that the sigmoidoscopic appearance of the bowel and the naked-eye and microscopical characteristics of the stools in "ulcerative colitis" are indistinguishable from those of chronic stages of bacillary dysentery.

In 1923 Dudgeon isolated Flexner's bacillus in two cases from material obtained from the surface of an ulcer examined through a sigmoidoscope. The same bacillus was isolated by Thorlakson and Cadman of Winnipeg in 1928 in six out of nine from material obtained by scraping the base of an ulcer with a sharp curette, though they had never discovered it in stools or in ordinary swabs from the ulcer surface.

In 1931 Winkelstein isolated a dysentery bacillus in four cases in adults in New York, and by 1935 he had with Herschberger obtained positive cultures in three additional cases; all seven were confirmed by agglutination tests. They also found that the serum in 27 out of 120 consecutive cases of ulcerative colitis agglutinated laboratory strains of dysentery organisms. In 1931 Mackie of New York recorded his investigations on the bacteriology of 83 consecutive cases of ulcerative colitis. In 17, or 20 per cent., of the 83 he isolated dysenteric organisms from swabs obtained through the sigmoidoscope. The majority were of the Flexner type, less commonly the Sonne, and in two Shiga's bacillus was isolated. In many instances frequent cultures had to be made over a considerable period before a positive result was obtained; in one case cultures were made through the sigmoidoscope weekly for eighteen weeks before a dysenteric bacillus was recovered. In a control series of 102 patients without ulcerative colitis a dysenteric bacillus was isolated in two, but both gave a history suggestive of dysentery and both were suffering at the time from acute diarrhœa.

In 1930 we isolated Flexner's bacillus, which was agglutinated by the patient's serum, from a swab obtained from the raw surface left after we had snared a polypus in the rectum of a woman, aged 36, who had had very severe ulcerative colitis since 1925 and had developed two long strictures and multiple polyposis. Numerous examinations of stools and swabs taken from ulcers during the five years of her illness had only shown *B. coli* and enterococci. Since then one of us (F. A. K.) has isolated Flexner's bacillus from sigmoidoscopic swabs in five other cases, Flexner variants in three cases, and the Sonne bacillus in one case. None of these patients had ever been abroad or had been associated with anybody known to have dysentery. Three of the Flexner cases, the Sonne case, and the three Flexner variants were in the New Lodge Clinic series of fifty-four patients.

In nearly all the above cases dysentery bacilli were recovered from swabs or scrapings from ulcers and not from the stools. The fact that only 13 per cent. of our cases gave positive cultures of dysentery bacilli does not disprove their dysenteric origin, as it is notoriously difficult to isolate the *B. dysenteriæ* from the stools of patients in the tropics suffering from typical dysentery only a week or two after the acute stage has passed, and we have already described a number of cases of undoubted chronic dysentery in which the organism had been isolated in the early stages of the illness and had finally disappeared from the stools.

If a patient with ulcerative colitis is actually suffering from chronic bacillary dysentery he must be classed as a carrier, even if we cannot grow the organism from his fæces. From 40 to 80 per cent. of proved carriers were shown during the war to agglutinate Flexner bacilli in dilutions of 1 in 200 or higher. But from our own records in only 6 out of a total of 70 cases of ulcerative colitis, in which the bacilli were not isolated from the stools, could any Flexner agglutinins be detected, and then never in a higher dilution than 1 in 50. As it is well established that a high proportion of normal sera agglutinate Flexner's bacillus in a dilution of 1 in 50 or even 1 in 100, the serological evidence indicates that the great majority of our cases of ulcerative colitis were not "carriers"—i.e., were not actively infected with Flexner dysentery at the time. That does not prove, of course, that they never had been infected with Flexner's bacillus, because it has been repeatedly shown that after convalescence the dysentery agglutinins disappear very rapidly from the blood.

These apparently contradictory findings can, however, be reconciled. It is quite possible that the original damage was done to the intestinal mucosa by a true dysentery infection, which then died out, but left the colon in such a state as to fall an easy prey to subsequent attacks by other and less virulent organisms. Table II. is an analysis of the bacteriology of the fæces and of sigmoidoscopic swabs taken from fifty-four cases of ulcerative colitis in New Lodge Clinic.

TABLE II

Bacteria other than B. coli communis *and enterococci isolated from fæcal cultures (McConkey) and blood agar in a consecutive series of 54 cases of ulcerative colitis. Organisms of Groups C, D, and E were recorded only when present in large numbers*

	Cases.
(A) Pathogenic dysentery-producing strains :	
B. dysenteriæ Flexner	3
B. dysenteriæ Flexner (very late lactose +, mannite +, dulcite −, non-motile) ..	3
B. dysenteriæ Sonne	1
(B) Pathogenic, enteritis-producing strains :	
B. enteritiditis Gaertner	1
Salmonella morgani	11
B. asiaticus	11
(C) *B. coli* variants and other coliform strains of very doubtful pathogenic power :	
Parenteric bacilli (unclassified motile strains, lactose −, saccharose +)	11
B. coli hæmolyticus	2
(D) Proteolytic strains of possible secondary pathogenic power :	
B. proteus	5
B. pyocyaneus	2
(E) Virulent micrococci :	
Streptococcus hæmolyticus	1

The sera of all the patients referred to in Group A agglutinated their bacilli in dilutions of at least 1 in 100. In Group B the Gaertner's bacillus was agglutinated by the patient's serum up to 1 in 100, two of the Morgan's bacillus infections gave positive agglutination up to 1 in 50, and a similar result was obtained with three of the *B. asiaticus* strains. Infection with the organisms in Group A may well have been the primary cause of the ulcerative colitis. With regard to the Groups B to E it is important to note that in several cases more than one of the organisms were isolated at the same or at different times in the same patient. Successive relapses sometimes coincided with the isolation from the colon of entirely different potentially pathogenic bacteria. Such entero-colitis-producing strains, sometimes of definite, sometimes of doubtful pathogenicity, are much more frequently found in the fæcal cultures of patients with ulcerative colitis than in those of normal people, and that they have nothing to do with the clinical condition is highly improbable. If in previously healthy intestines these strains are capable of setting up irritation and causing diarrhœa, their possible effect upon the already weakened colon in ulcerative colitis must be far greater. They may have gained access to the bowel at the time of the original infection, or at a later date, in which case they may have been the existing cause of a relapse.

The bacteriological evidence suggests therefore that if chronic ulcerative colitis arises from infection with Flexner dysentery bacillus, the infection must generally play no more than the initial part of damaging and lowering the natural resistance of the intestinal mucosa. In a few cases the Flexner infection may persist, and these cases are examples of true chronic dysentery, but in the majority the Flexner bacilli die out completely and other damaging influences, often secondary infections, affect the colon, producing the characteristic chronic disease with its great tendency to relapse.

The apparently non-infective nature of ulcerative colitis has been quoted as evidence against its dysenteric origin. If the original dysenteric infection is no longer present in the majority of cases, the non-infectivity is explained. Moreover the sanitary arrangements in the average household are sufficiently good to account for the rarity with which ulcerative colitis appears to be transmitted. Even the familial incidence of acute dysentery in England is small. Thus only a single individual was involved in 44 out of 60 families with a Flexner dysentery infection and 39 out of 44 families with a Sonne infection observed in Aberdeen between 1919 and 1928 (Fraser and Smith).

In the New Lodge Clinic series of fifty-four cases of ulcerative colitis there was one example of such transmission. In 1929 two sisters living in the same house in North London developed the disease within a few weeks of each other. One died four years later. The other came under our observation in 1936 when 43 years old, having had symptoms of ulcerative colitis of varying intensity for seven years. She improved rapidly after treatment with antidysenteric serum and at the end of six weeks the mucous membrane of her colon appeared to be completely normal.

Conclusions

1. Bacillary dysentery has been endemic in Great Britain since the fourteenth century, and the mild and scattered epidemics of to-day are the direct descendants of the serious and widespread epidemics of the seventeenth and eighteenth centuries, reinforced by infection brought home by soldiers from the Crimean and South African Wars and the Great War, travellers from the East, and recently by passengers on pleasure cruises.

2. The majority of cases in Great Britain sufficiently severe to deserve clinical description as dysentery are Flexner infections. A few are caused by bacilli of the Schmitz (atypical Shiga) type, and a small proportion of the comparatively common Sonne (atypical Flexner) infections give rise to true dysentery. Shiga dysentery is almost unknown.

3. Many cases of infection with dysenteric organisms, especially with the Sonne bacillus, do not present the essential symptom of dysentery—a "bloody flux."

4. Ulcerative colitis is probably a sequel of an acute or subacute infective colitis. In many cases a dysentery bacillus is the original infective agent. Unless promptly treated, preferably by a specific antiserum, the condition may become chronic. In a few cases the dysenteric infection may persist; more commonly the organism responsible for the original infection disappears from the intestines and the specific agglutinins disappear from the blood. The persistence of the disease and its recurrences may then be caused by various entero-colitis-producing bacilli, swallowed in the food at the same time as or subsequent to the original infection. In this way the apparently contradictory bacteriological findings can be explained.

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OPTIC ATROPHY AS THE PRESENTING SIGN IN PERNICIOUS ANÆMIA *

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THE territory of medicine abounds in barren wastes, but their number and extent is rapidly diminishing. Rarely the pasture land increases because the mind of a genius discovers a new fertiliser. But more commonly it is the novel and vigorous application of well-established methods of fertilisation to a hitherto waste area that renders it productive. Although Laennec introduced auscultation in 1819, it was not until a century later that cephalic auscultation became a part of the routine neurological examination. Hence the clinical recognition of intracranial blood-vessel tumours is of comparatively recent date. But it is not only in the field of clinical methods that this failure to apply established principles to the problems of medicine is evident. We are often blind to the possibility that pathological tissue changes, which we recognise as occurring frequently in one organ of the body, can and do occur in other organs, and give rise to characteristic clinical features. Thrombosis in the cerebral arteries was noted clinically by the teachers of the oldest member of this Association, and yet, though coronary artery thrombosis had been described as a pathological entity in the latter half of the nineteenth century, the history of its clinical recognition dates back barely a dozen years. Renal artery thrombosis in the old, with resulting symptomless hæmaturia, is still unfamiliar to many clinicians.

Disturbances of vision accompanying pernicious anæmia have long been recognised. These are associated with such lesions as retinal œdema and hæmorrhages, thrombosis of the central artery or vein, chorioretinal degenerations, and very rarely, hæmorrhage into the optic nerve. But the occurrence of amblyopia as the *presenting* symptom in pernicious anæmia before blood changes are clinically manifest appears to be still unrecorded. This omission is the more noteworthy since two facts are now well established regarding the changes in the nervous system accompanying pernicious anæmia: first, that these are widespread, involving not only the brain and spinal cord but also the peripheral nerves; and secondly, that their clinical manifestations might precede, for a variable and sometimes lengthy period, the clinical evidence attributable directly to the anæmia. These two facts render it likely on a-priori grounds that optic nerve changes might occur as the earliest manifestation of pernicious anæmia; and the following two cases are, I submit, adequate evidence of this sequence.

FIRST CASE

Male, aged 55; licensee. Admitted to the Liverpool Royal Infirmary on March 18th, 1935, complaining of failing vision for a year. Married: one child aged 28 quite well. Father died of senility at 80; mother alive and well aged 81. Two brothers and two sisters well. Wife well; no miscarriages. No family history of blindness. The patient's only past illness was dysentery (? type) in 1917; he denied venereal disease. He had never smoked more than 1 oz. of tobacco weekly and was teetotal. He had first noticed his vision failing a year before admission. This visual failure had gradually increased recently at a more rapid rate. There was no history of diplopia, headache, pains, paræsthesiæ, or weakness of the limbs, and he had experienced no difficulty in walking. His appetite had been good and there were no dyspeptic symptoms. The bowels were regular; there were no urinary discomforts.

He was well nourished and showed no pallor of skin or mucous membranes. There was no œdema, no thyroid enlargement, no palpable lymphatic glands, and no clubbing of the fingers. The skull was normal to palpation, percussion, and auscultation. His intelligence, memory, and concentration were normal. His smell was normal. The report on his eyes was: right vision 6/60; left vision 6/36; visual acuity admits of no improvement with lenses; no ophthalmoplegia; media clear: both discs pale, especially right; no retinitis; slight concentric contraction of visual fields to 2 mm. white; tension (McLeay tonometer)—right eye 30 mm., left eye 25 mm. The pupils were equal, circular, central, and regular, and reacted normally to light, both directly and consensually, and to accommodation. All ocular movements were full; there was slight lateral rhythmic nystagmus on looking to the right and left with quick component towards the fixation-point. There was no sensory change over the face and no paresis of the muscles of mastication. Facial movements were normal. Hearing was good. There was no dysphagia nor dysphonia; the palate and vocal cords moved normally. There was no paresis of trapezius or sternomastoids. The tongue protruded normally and showed neither wasting nor tremor.

In the upper and lower limbs, and trunk, power was normal; there was no sensory loss to touch, pin, heat, cold, vibration, or joint sense. Both deep and superficial reflexes were present and symmetrical, both plantar responses being flexor. There was no incoördination and the gait was normal. No involuntary movements were seen.

The heart was normal in size, shape, sounds, position, and rhythm; the blood pressure was 126/78, the pulse-rate 80, and there was no gross arterio-sclerosis either peripheral or retinal. The chest moved well and symmetrically, percussion note and breath sounds were normal, and no adventitious sounds were heard. The teeth were deficient and slightly carious; the tongue was clean and moist but not depapillated; the tonsils were normal and there was no evident pharyngeal sepsis. Abdominal examination revealed no localised tenderness, rigidity, distension, or tumour. The urine was acid, specific gravity 1020, and free from sugar, albumin, excess of urobilin, pus cells, and casts.

Radiography of the skull (March 20th, 1935) showed no bone change and the pituitary fossa appeared normal in size and shape. The blood Wassermann reaction (March 21st) was completely negative. The cerebrospinal fluid pressure was 145 mm. of water and showed normal responses to jugular and abdominal compression; it was clear with normal protein content, less than one cell per c.mm., and showed no significant change in the gold curve; the Wassermann reaction in all dilutions was negative. Examination of the ears, nose, and throat revealed no evidence of disease; nor did radiography (April 2nd) reveal any evidence of infection in the accessory air sinuses.

A diagnosis of optic atrophy, cause undetermined, was made.

The patient returned to hospital on Sept. 3rd, 1935, saying that two months previously he had begun to experience easy fatigue; indeed, he was unable to walk more than 20 yards without marked exhaustion; there had in the preceding two months been increasing pallor and flatulence immediately after meals; his appetite had declined. His vision despite the increasing evidences of anæmia had deteriorated but slightly. There were, however, no other subjective discomforts.

On examination he showed marked pallor with a lemon-yellow tinge of the skin and mucous membranes. There was no evidence of recent wasting, no petechiæ, and no enlarged lymphatic glands were palpable. His heart remained satisfactory, but his blood pressure was 102/50, with pulse-rate 84. His lungs were clear. His tongue now showed small areas of superficial depapillating glossitis. Abdominal examination was again negative. The vision had deteriorated to 6/60 in both eyes; the pallor of the discs was more marked and the pupillary response to light was sluggish, but no other evidence of nerve involvement was found. His urine showed slight excess of urobilinogen but was otherwise negative. His blood count on Sept. 5th was:—

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* Communicated to the Association of British Neurologists, Edinburgh, June 12th, 1936.

Red cells	1,730,000	Polymorphs	65%
White cells ..	4,300	Lymphocytes ..	31%
Hæmoglobin ..	30%	Monocytes	1%
Colour-index ..	1·7	Myelocytes	3%

Normoblasts, poikilocytes, and anisocytes present. Halometer: P.A. side.

Two days later another observer (Dr. Howel Evans) reported:—

Red cells	1,744,000	Polymorphs	69%
White cells ..	3,908	Lymphocytes ..	27%
Hæmoglobin ..	32%	Monocytes	3%
Size of red cells		Eosinophils	0%
(halometer) ..	8·0μ	Basophils	1%

The stained film agrees with the halometer reading; there is marked macrocytosis; polychromasia, anisocytosis, and nucleated red cells are present, as are a few megaloblasts. The white cells show little variation from the normal.

He was given Campolon intramuscularly in doses of 4 c.cm. daily from Sept. 7th to 16th, when his blood had improved to: hæmoglobin 55 per cent., red cells, 2,200,000. Campolon was continued in doses of 4 c.cm. on alternate days, and by Oct. 1st his hæmoglobin was 60 per cent., with red cells 3,000,000. Radiography of the alimentary tract showed no abnormality and his gastric analysis (Oct. 4th) showed complete achlorhydria with a low total acidity. By the 21st his hæmoglobin had improved to 90 per cent. and his red cells were 4,000,000. He observed subjectively an improvement in his vision. He continued with campolon 4 c.cm. twice weekly and by Feb. 4th, 1936, his hæmoglobin was 97 per cent., with red cells 4,360,000, and his vision had improved considerably. He was last seen on May 5th when his visual acuity had improved to 6/12 in both eyes. He is now on Anahæmin (B.D.H.) 2 c.cm. at fortnightly intervals.

SECOND CASE

Male, aged 46; clerk. Married; two children well. First seen Dec. 16th, 1935. Eight months previously he had first noticed blurring of vision which gradually progressed despite glasses. He felt otherwise perfectly fit. His father and a paternal aunt had died of pernicious anæmia and one brother died of carcinoma ventriculi. The family history was otherwise negative, and he had enjoyed perfect health all his life.

He was well nourished with no pallor of the skin or mucous membranes, no œdema, no jaundice, no skin or thyroid change, no palpable glands, and no skeletal abnormality. His visual acuity was 6/60 in both eyes. The fundi showed marked pallor of the discs but no vascular disease nor hæmorrhages. The visual fields showed slight concentric contraction; intra-ocular tension was normal. The pupillary reaction to light was somewhat sluggish but normal to accommodation. The pupils were circular, central, and equal in size. Ocular movements were normal; there was no nystagmus and no evidence of cranial nerve dysfunction. Power, reflexes, sensation, coördination, &c., in limbs and trunk showed no evidence of organic nervous disease. The heart was normal in size, shape, sounds, position, and rhythm, blood pressure 140/80, pulse-rate 76, and there was no peripheral arterio-sclerosis. He had complete dentures, a clean but non-depapillated tongue; his sinuses and antra transilluminated normally, and there was no tonsillar or pharyngeal sepsis. Abdominal examination was negative. His lungs were clear. His urine was acid (spec. grav. 1010) and free from sugar, albumin, excess of urobilin, pus cells, and casts.

His blood Wassermann reaction was completely negative, and radiography of his skull, including pituitary fossa, sinuses, and antra, showed no evidence of disease. His cerebro-spinal fluid was not examined.

Although in this case there was no clinical evidence of either pernicious anæmia or subacute combined degeneration of the spinal cord, the memory of the first case was revived by the history of pernicious anæmia in his father's family and the absence of any ascertainable cause for his optic atrophy. A gastric analysis and blood count were therefore made. Complete achlorhydria was found and the blood showed:—

Red cells	4,700,000	Polymorphs	70%
White cells ..	7,400	Lymphocytes ..	25%
Hæmoglobin ..	94%	Monocytes	3%
Size of red cells ..	7·8μ	Eosinophils	1%
		Basophils	1%

Treatment was commenced on Jan. 4th, 1936, with campolon 5 c.cm. daily for seven days and then on alternate days for three weeks, after which two doses weekly were given. Gradually his vision improved and the most recent examination (June 2nd) shows his visual acuity in the right eye 6/12 and in the left eye 6/9. He is now able to carry on quite satisfactorily with his work.

DISCUSSION

I have previously emphasised that nervous symptoms in pernicious anæmia arise from: (1) the anæmia itself with resulting defective nutrition of nerve elements; (2) loss of function followed by degeneration of nerve elements, due either to a toxin present in pernicious anæmia or the absence of a specific substance essential to neural nutrition; and (3) areas of softening due to small hæmorrhages or thromboses.[1] The absence of regeneration in the central nervous system means that only those symptoms resulting from temporary loss of function and due especially to the first and second factors detailed above are potentially curable. The lesions caused by this second factor and their resulting symptoms might precede by a considerable period the clinical manifestations of pernicious anæmia and at first the effects would appear to be temporary and amenable to treatment. But if left untreated the pathological changes progress to irreparable and complete neuronic degeneration. In the cases recorded in this paper we are dealing with the influence of this second factor whose temporary and permanent effects gradually and imperceptibility merge, and treatment alone will reveal what degree of recovery is possible. Clinical examination cannot determine the proportion of temporary to permanent changes responsible for the visual loss in these cases, for the resulting symptoms and signs of both are identical. It is in this sense that the term "optic atrophy" is applied to the pathological change responsible for the visual disturbances described, and my cases demonstrate that this type of optic atrophy can precede other neurological and blood changes in pernicious anæmia. I exclude a fortuitous association of optic atrophy of undetermined origin with pernicious anæmia on what I think will be conceded are the amply adequate grounds of (1) the age of the patient at the onset of optic atrophy; (2) the steady deterioration in visual acuity before treatment was commenced; and (3) the considerable improvement which followed immediately the adequate parenteral administration of liver extract.

I would not without further observation venture to estimate how many cases of unexplained optic atrophy belong to this group. It is evident, however, that a few human beings can be spared the tragedy of progressive blindness if an unmasked pernicious anæmia be recognised early as the cause of failing vision and adequate treatment given.

The knowledge that failing vision due to optic atrophy might be the presenting symptom in pernicious anæmia will doubtless facilitate its recognition at an early stage. It is in the hope that the victims might be prevented from progressing to an advanced stage of blindness before the more obvious signs of its cause are evident that I have ventured to present these two cases.

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[1] Cohen, H.: THE LANCET, 1935, i., 1291.

UVEO-PAROTITIS

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THE description in 1909, by Heerfordt[1] of Copenhagen, of "febris uveoparotidea" was the first account of a condition which has attracted increasing attention of late years. The affection remains rare enough to warrant the publication of an individual case, especially one presenting features which may throw additional light on the ætiology.

The fact that some of the patients have had no pyrexia[2-4] discredits Heerfordt's original name, and possibly the best concise definition is that of Garland and Thomson[5] who describe uveoparotitis as a "definite clinical entity characterised by bilateral uveitis and parotitis, pursuing a chronic course with a well-marked tendency to spontaneous recovery." Bilateral parotid swelling is by no means invariable, however, and in the case to be presented the ocular signs were unilateral.

Heerfordt suggested that the febris uveoparotidea was a complication of mumps, but there is no evidence to support his contention. The condition has been variously attributed to syphilis, beri-beri, oral sepsis, and diphtheria,[6] and Bang[7] even regarded so-called pseudo-leukæmia as a possible cause. It was recognised by Lehmann[8] that it might be ascribed to tuberculosis, and other continental supporters of this theory include Muller,[9] Schall,[10] and Berg.[30] Since the publication of Garland and Thomson's[5] classical paper it has been widely held that the disorder is always tuberculous. Consideration of previously reported cases suggests that the more carefully evidence of tuberculosis is sought, the more often is it found, and certainly the evidence seems almost complete in many cases. In such cases as those of Garland and Thomson[11] and Tanner and McCurry,[12] biopsies of parotid swellings and affected irides have shown a sclerosing endothelial proliferation "characteristic" of tuberculosis. Tubercle bacilli have, however, never been demonstrated in this condition, although it must be admitted that the search is a particularly fruitless one in many cases of the endothelial type of the disease.

Tait[4] has published the case of a patient in whom the polyneuritis sometimes associated with this condition was especially marked. He thought it unlikely that this affection of the peripheral nerves could be tuberculous, and quotes Critchley and Phillips[13] and Weve.[14] The former consider that the "weight of evidence pointed to some specific virus or agent as yet unknown," and Weve's view is similar.

In our opinion, however, the ætiological problem is not "is uveoparotitis due to tuberculosis or is it due to some unknown infective agent?"[6] A common practice, and one not solely confined to continental writers, is to ascribe a variety of conditions to a single cause. Koch's bacillus was once blamed for the reticulo-endothelial hypertrophy of Hodgkin's disease. We hold that a variety of causes may under certain conditions be operative. After study of the case to be presented it does, at least, seem wiser to withhold judgment and to refrain from labelling "uveoparotitis" as tuberculous without sufficiently exact proof in each case.

CASE RECORD

The patient was a railway clerk aged 50. His father died from pulmonary tuberculosis when the patient was 13 years of age. No proof of any other tuberculous disease in his family, nor any evidence of close or more recent contact with any sufferer from active tuberculosis was available. He never himself had asthma, nor any disease of supposed allergic type, and there is no suggestion of any hereditary tissue hypersensitivity. During childhood two attacks, apparently of pyelitis, were sustained, and he had scarlet fever at the age of 10. He never had mumps. In 1926 he was operated upon for hernia, and at this time a faint trace of albumin was detected in the urine. No albumin was found two months later, but his recovery from the operation was slow—and he began to experience slight general ill health.

In March, 1934, he had some pains in both legs which were attributed to a mild phlebitis. These subsided satisfactorily, but in July, 1934, he developed a carbuncle on the right upper lip and also a right-sided pleural pain. He was gravely and acutely ill, and a septicæmic condition was thought possible. Pus appeared in the urine and a right lower lobar pneumonia developed, but the carbuncle improved after massive doses of Collosol Manganese had been given intramuscularly. The urine cleared and the lip recovered completely, but improvement was very slow, and on August 23rd, 1934, he was admitted to hospital under the care of one of us (G. E. L.) with a diagnosis of unresolved pneumonia of the right lower lobe.

The radiogram taken at this time (Fig. 1) shows the inert diaphragm on the right side, as well as the shadow of a hilar gland and collapse of the right lower lobe. Paracentesis of the chest failed to reveal any fluid. The sputum was twice examined for tubercle bacilli but none were found. The Wassermann reaction of the blood was negative and the fundi were then normal. He was discharged after a fortnight in hospital, and at subsequent examinations he showed general improvement. Air entry into the collapsed right lower lobe continued to be deficient, although better than when first admitted to hospital.

In October, 1934, swelling of the legs was noticed. This resembled angioneurotic œdema, and persisted intermittently until March, 1935. All through the winter he complained of some dyspnœa on exertion. He remained in moderate health, however, until April 17th, 1935. On this date he had a temperature of 99° F. in the evening, and both parotid glands were noticed to be slightly swollen. Pain was absent, and all attempts to trace a contact with mumps failed. The swelling rapidly subsided, and on April 20th iritis developed in the right eye, to which it remained confined. The left eye was unaffected throughout.

This iritis was characterised by deposit of fine pigment upon the anterior capsule of the lens without the corneal precipitates reported by other observers. The vision of the right eye was reduced by vitreous haze to mere perception of light. The application of heat and atropine resulted in gradual resolution of the inflammatory process, and on June 15th the visual acuity had recovered to 6/60. On Sept. 10th, 1935, the patient's vision was as good in the right eye as in the left—but, to use his own words, he stated that objects seen with the right eye alone were "vignetted." Neither then nor previously had the intraocular tension been raised, and full recovery appeared to have occurred. Ophthalmoscopy, however, revealed cavernous atrophy of the right optic nerve head, limited to the temporal side and in its middle and lower thirds (Fig. 2). Perimetry showed some general constriction of the visual field of the right eye—more evident on the nasal side—and a contracted field of vision, almost hemianopic in character, for a red object (Fig. 3).

A full account of the ophthalmological aspects of this case has been presented by one of us (D. S. S.).[15] The non-glaucomatous nature of the change pointed out by Maitland Ramsay[16] is confirmed.

The patient's recovery appeared complete, but in September, 1935, he had an urticarial rash, some further angioneurotic œdema, and a "fainting attack." Further investigations were carried out in December, 1935, when the cerebro-spinal fluid was reported upon by Dr. W. W. Adamson as entirely normal. The Wassermann reaction of the fluid was negative also.

In January, 1936, there was still a little diminution in air entry, and some persistent dullness over the base of the right lung. The condition did, however, represent a great improvement upon that of August, 1934, and a chest radiogram is reproduced for comparison (Fig. 4). The hilar gland shadows are still visible, but the report of the radiologist (Dr. J. E. Bannen) is to the effect that the chest may be regarded as normal. A Mantoux test was carried out on Jan. 24th, 1936. A strongly positive result was obtained as well with a 1 in 10,000 dilution of old tuberculin as with a 1 in 1000 dilution. At no time were there any abnormal neurological[31] or hæmatological[17 18 32] findings.

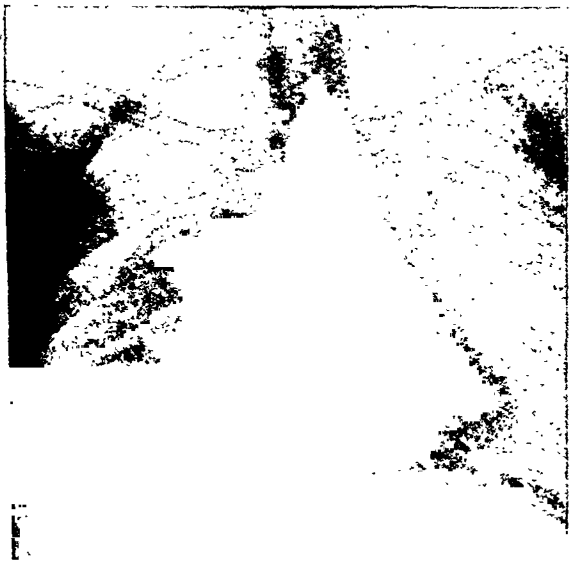

FIG. 1.—Collapsed right lower lobe. Unresolved pneumonia.

DISCUSSION

We are satisfied that this case, though it has unusual clinical features, is an example of uveoparotitis. The ophthalmic findings appear of particular interest, not only because of their essential nature—e.g., development of cavernous optic atrophy—but also because the changes were unilateral. In such patients as those of Kruskal and Levitt,[3] Feiling and Viner,[17] Macbride,[18] Cogan,[19] and in the earlier cases of Mackay,[20] McCulloch,[21] and Brewerton[22] (the first case described in England) the ocular lesions were bilateral. In our case no evidence of polyneuritis or even of any lesion confined to cranial nerves could be demonstrated (Feiling and Viner,[17] Macbride,[18] Tait[4]), and in this respect it resembled the patients of Dorrell,[2] Parker,[23] and others quoted either by Garland and Thomson[5] (47 cases), or by Merrill and Oaks[24] (30 cases).

Our patient's parotid swellings preceded his visual symptoms. In the patients of Parker,[23] Kruskal and Levitt,[3] Soutter,[25] and most other observers, the reverse order of incidence has held. It appears probable that some such cases, with parotid swelling as the first sign, must have led to the statement in a well-known text-book[26] that optic atrophy may occur as a complication of mumps. In no respect did the present patient resemble a case of Mikulicz syndrome.[27]

Leaving aside the older theories of the cause of uveoparotitis, already referred to, and also the possible association with canine distemper, hinted at by Parker[23] and Dorrell,[2] the present case appears at first sight to lend support to the modern concept of the disease as a tuberculous process. Yet we do not fully accept the tuberculous causation in this case, despite its apparent probability. Ranke[28] has shown that the tuberculous state can be divided into three stages, each characterised by its own type of tissue reaction. The primary stage of infection occurs, in the majority of the population, during childhood. It is symptomless and signless. In the secondary stage, however, a high degree of "allergy" develops. This stage may also be symptomless—and sometimes signless too, apart from positive tuberculin reactions. In the tertiary stage, tuberculin tests reveal a lessened degree of tissue hypersensitivity and an increase in immunity.

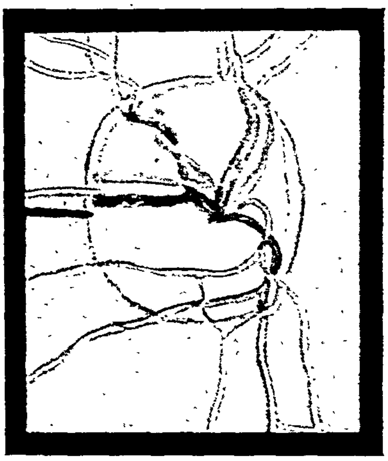

FIG. 2.—Ophthalmoscopic appearances.

The lesions of the secondary stage, when they appear, are usually exudative rather than proliferative, and amongst these "paratuberculous" phenomena phlyctenular conjunctivitis and erythema nodosum may be mentioned. The work of Collis,[29] with which one of us (G. E. L.) was associated, has shown that erythema nodosum is by no means always tuberculous, although the lesions are exudative. It may be stated that this condition is probably due to a local tissue hypersensitivity, but that the allergen which induces this cellular state is not always the same. According to Collis the bacterial allergens responsible for erythema nodosum in London are commonly either tuberculin or hæmolytic streptococcal endotoxin.

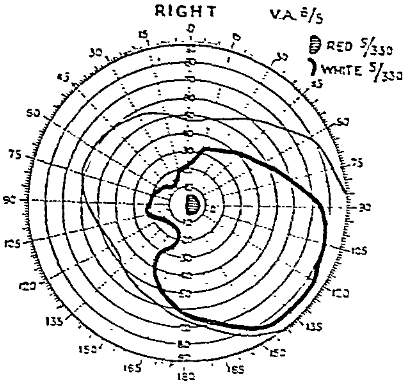

FIG. 3.—Perimetric chart of right eye.

Without wishing to be dogmatic, we think that a similar immunological basis underlies the pathology of uveoparotitis. The present case, it is true, shows a degree of tissue hypersensitivity to tuberculin, but this is by no means proof that the illness of our patient, associated with the unilateral uveitis and the bilateral parotid swellings, was necessarily due to a tuberculous infection. Tubercle bacilli were never demonstrated, and the clinical character of his last preceding illness (the pneumonia) was certainly not that of a tuberculous process.

It must be repeated that in the reported cases where biopsies have been performed (e.g., Tanner and McCurry,[12] Garland and Thomson [5 11]) a doubt arises. Guinea-pig inoculations have nearly always been negative, and the presence of a round-celled *infiltration*, even *together* with *giant cells*, is not always necessarily a proof of a tuberculous infection.

We prefer to regard uveoparotitis as an allergic manifestation, and in view of the great number of possible allergens—in addition to tuberculin itself—it appears to us both wiser and safer to suspend ætiological judgment. Each case of uveoparotitis deserves to be viewed on its merits, and we should not regard strongly positive tuberculin reactions as undoubted proof of a tuberculous causation of the condition. If other allergens could, by the same technique, be excluded, our conclusions would naturally be different. Similarly unequivocal demonstration of tubercle bacilli in the affected tissues could only point to the one cause.

It is possible that our patient's acute pulmonary illness may have had no relation at all to his uveoparotitis. It would seem, however, that if the latter were tuberculous, the previous lung infection would have had some clinical resemblance to a phthisical complaint, even apart from the absence of bacteriological proof. It is just such a case as that now reported which should lend the strongest support to the specifically tuberculous nature of uveoparotitis. We admit that some cases of this disease are almost certainly due to tuberculous infection, but we deny that every single case has, necessarily, such an origin.

In previously reported cases a period of malaise has been described before the onset of frank uveoparotitis. In our patient's case it is difficult to say at exactly what date the antecedent debility began. The severe general illness culminating in pneumonia may or may not have acted as the "sensitiser" of the uveal and parotid tissues. Any attempt at an explanation of the choice of the site or the limitation of the pathological tissue changes is beyond our present scope. It may well be that the position of the lesions is related to local differences in tissue hypersensitivity—a selective "allergy"—using the term in the original and broader sense of von Pirquet.

Although this patient had never previously suffered from any disease of an allergic sort, the attacks of angioneurotic œdema related afford another indication that the tissue immunity had been disturbed—whatever the exciting allergen involved.

The cases quoted and reported by Garland and Thomson strongly support their argument for a tuberculous ætiology—but only for those particular cases. Even if miliary tuberculosis supervened it might be argued that the uveoparotitis itself was not necessarily tuberculosis. Another allergen could have so altered the local tissue immunity that the natural defences against a tuberculous infection, possibly exogenous, but certainly from a source different from the uveal tract or parotid gland, were rendered ineffective. In other words, the allergen active in causing uveoparotitis might merely prepare the way for tuberculosis. The tuberculous infection which follows would then be merely a concurrent pathological process and not the specific cause of the uveoparotitis.

SUMMARY

(1) A case of uveoparotitis is described and the possible origins of the disorder are discussed. (2) We suggest that uveoparotitis may not be due to any one specific infection, but is rather a manifestation of local tissue hypersensitivity—possibly due to any one of a variety of allergens or sensitising agents.

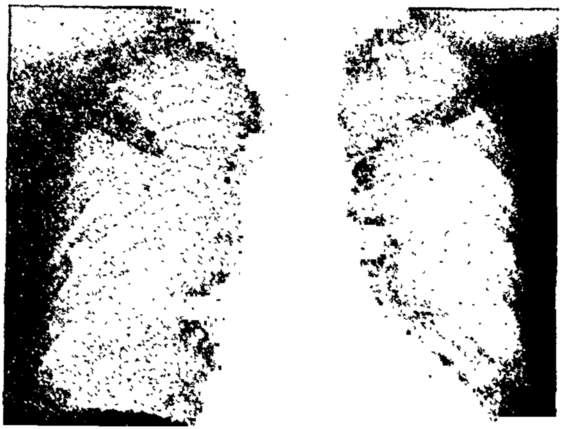

FIG. 4.—Enlarged root glands.

(3) Whilst tuberculin may often be the allergen responsible, it seems unwise to regard all cases of uveoparotitis as tuberculous.

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SIMULTANEOUS BILATERAL ARTIFICIAL PNEUMOTHORAX

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FEW of those who are concerned with the problems of pulmonary tuberculosis will deny that artificial pneumothorax therapy is the greatest advance in treatment during the last twenty years. Although it is a notable advance, it is unfortunately only applicable in a relatively small proportion of all cases of phthisis, thus limiting its undoubted value.

Pneumothorax treatment has enabled many who were destined to a speedy decease, or at the best to a life of chronic invalidism with its attendant misery both for the patient himself and his relatives, to be restored to a working capacity and, consequently, economic independence. Simultaneous bilateral collapse, by extending still further the scope of pneumothorax treatment, presents another important advance, which we in this country have perhaps not appreciated as fully as some workers on the continent and in America, and it demands far deeper consideration from ourselves than it has received up to the present.

The unilateral pneumothorax in spite of its undoubted value has its disappointments and its limitations. A fresh focus of disease may appear in the hitherto clear contralateral lung or a formerly quiescent focus therein may show signs of active spread. In other cases active bilateral disease makes unilateral collapse a valueless procedure. For these, simultaneous bilateral collapse, when practicable, is the only possible solution. We have therefore collected and studied a consecutive series of such cases, 44 in number, which have passed through the sanatorium as in-patients during the last seven years.

INDICATIONS

Careful examination of the histories of these 44 patients show that the cases chosen for the induction of bilateral pneumothorax divide themselves into two main groups.

Group A.—Cases in which a simultaneous bilateral pneumothorax was a primary consideration. In this group there was a very short interval between the induction of the two pneumothoraces, usually 2–4 weeks. We find here that the lesions fell into three distinct types: (1) an active or spreading lesion in both lungs; (2) a spreading lesion in one lung with a non-spreading but symptom-producing lesion in the other; and (3) non-spreading but symptom-producing lesions in both lungs.

Group B.—Cases in which an artificial pneumothorax has been established on one side and the patient has remained stable for some time; relapse has then taken place, either by the appearance, clinically or radiologically, of disease in the previously healthy contralateral lung, or by the activity or spread of a focus in the contralateral lung which had up till then remained quiescent. The time interval between the inductions in this group will obviously vary from months to years, being dependent upon the date of the appearance of that spectre, relapse.

TECHNIQUE

The induction of a simultaneous bilateral pneumothorax must of necessity vary slightly in accordance with the grouping of the case. In Group A, where there is active or gross bilateral disease, the more heavily infiltrated lung is collapsed first. The actual method employed is that of the ordinary unilateral artificial pneumothorax, save that the volume of air introduced is smaller, usually 150 200 c.cm. A similar amount is introduced on the second, the fourth, and the seventh days. Before his refill on the eleventh day the patient is examined under the fluorescent screen, and henceforth the intervals between refills and the volume of air introduced are regulated according to the degree and type of collapse observed on the screen. Every effort is made by these means to obtain a selective collapse of the diseased area. When a satisfactory degree and type of collapse have been attained, this usually taking 2–6 weeks, the physician can now turn his attention to the other lung, which is collapsed and controlled on the same general principles.

The ideal radiological result is a selective collapse of the diseased portions of both lungs with the healthy portions inflating freely. There should, as a rule, be no mediastinal herniation or displacement, and the heart should be in its normal position. This happy state cannot always be attained, since the distribution of the disease and the size of the areas involved may preclude it, but with a little care it is surprising how often a result approaching the ideal can be produced.

It is not always expedient to have the degree of collapse the same on the two sides, even when the lesions in the two lungs appear comparable in type and extent. The general comfort of the patient and his symptoms may be profoundly influenced by readjustments in the depth of collapse on one or other of the two sides. Skilful attention to this "balancing" of the collapses, at times a rather tedious procedure, is well repaid by a greatly improved general response. But it may be accepted as an axiom that the lung with the more long-standing and denser disease, especially if cavitated, requires a more complete collapse than the less affected lung.

It is indeed remarkable the extent to which the lungs may be compressed without the patient showing any signs of respiratory distress, so long as one lower lobe is permitted to inflate freely.

The most favourable results are undoubtedly obtained in those cases in which the lesions are confined to the upper lobes; in these a bilateral selective apical collapse can frequently be produced, thus controlling the diseased areas, whilst at the same time the healthy lower lobes are allowed to inflate freely, ensuring a sufficient vital capacity for easy, effortless respiration even with moderately severe physical exercise.

In Group B, where one lung has been collapsed for some time before a spreading lesion appears in the contralateral lung, a simultaneous bilateral pneumothorax need not always be considered immediately, but more conservative methods may be tried out at first—prolonged rest in bed, chrysotherapy, and so forth—and when such measures fail bilateral pneumothorax should be considered. During the period of conservative treatment the progress or retrogression of the new lesion is carefully observed by means of comparable serial X ray films taken at frequent intervals. Frequently the lesion becomes static or retrogressive, when no further interference is necessary. Some lesions, on the other hand, show signs of instability when exercise is increased, or continue to spread or cause symptoms in spite of routine treatment. In these cases, the original pneumothorax should be allowed to inflate slowly until the lung is ventilating freely, attempts

CASES TREATED WITH SIMULTANEOUS BILATERAL ARTIFICIAL PNEUMOTHORAX

CASES ALIVE—GROUP A

Case.	Age.	Years since induction of bilateral A.P.	Years maintained as bilateral A.P.	Years since one or both sides abandoned.	Reasons for abandonment.	Immediate response.	Response after 1 year or longer.	Complications.	Remarks.
		yr. mth.	yr. mth.	yr. mth.					
1	31	7 9	2 6	5 3	Physician's choice.	Good.	Fair.	—	4 years doned.
2	23	5 11	0 9	5 2	Obliteration.	„	„	—	ıg after obliteration.
3	23	1 6	1 6	—	Still maintained.	Fair.	„	Small amount of fluid; refill reactions.	—
4	20	6 5	2 9	3 8	Obliteration.	Good.	Good.	—	—
5	22	4 4	0 3	4 1	Spontaneous pneumothorax in R.	„	Fair.	Spontaneous pneumothorax.	Late cavitation in R. lung after R.A.P. was abandoned.
6	17	1 10	1 10	—	Still maintained.	„	Good.	—	—
7	29	6 6	2 6	4 0	Fluid in R.	„	„	Fluid.	—
8	23	3 0	0 6	2 6	Adhesions; diseased parts of lungs could not be collapsed.	Bad.	—	—	Good response to bilateral apicolysis later.
9	20	4 5	2 4	2 1	Obliteration.	Good.	Good.	—	—
10	19	4 5	1 3	3 2	„	„	„	—	—
11	23	5 3	2 2	3 1	Fluid.	„	„	Fluid.	—
12	22	5 7	1 0	4 7	Obliteration.	„	„	—	—
13	33	0 10	0 10	—	Still maintained.	Fair.	—	Fluid.	—

CASES ALIVE—GROUP B

Case.	Age.	Years since induction of bilateral A.P.	Years maintained as bilateral A.P.	Years since one or both sides abandoned.	Reasons for abandonment.	Immediate response.	Response after 1 year or longer.	Complications.	Remarks.
1	24	6 10	1 6	5 4	Spontaneous pneumothorax.	Good.	Fair.	L. spontaneous pneumothorax.	—
2	18	5 10	3 2	2 8	Physician's choice.	„	Good.	—	—
3	19	2 2	0 6	1 8	Fluid. Dyspnœa.	Bad.	Bad.	Fluid.	Spread of disease and cavitation in L. lung after L.A.P. abandoned.
4	28	6 6	6 6	—	Still maintained.	Good.	Good.	—	—
5	18	1 3	1 3	—	„	„	„	—	—
6	18	1 6	1 6	—	„	„	„	—	—
7	30	1 5	1 5	—	„	Fair.	Fair.	—	—
8	—	4 3	3 5	0 10	Fluid.	Good.	Good.	Fluid.	—
9	26	1 8	1 8	—	Still maintained.	„	„	Small amount of fluid; refill reactions.	—
10	22	1 3	1 3	—	„	„	„	—	—
11	18	5 3	2 3	3 0	Obliteration.	„	Fair.	—	Late cavitation occurred in L. lung after L.A.P. was abandoned.
12	23	5 7	1 1	4 6	Refill reactions.	„	Bad.	Refill reactions.	Spread of disease in R. lung after R.A.P. was abandoned; R. phrenicectomy performed later.
13	20	0 10	0 10	—	Still maintained.	„	—	—	—
14	27	1 0	1 0	—	„	Fair.	Fair.	Small amount of fluid; refill reactions.	—
15	—	1 8	1 8	—	„	Good.	Good.	—	—
16	18	1 8	1 8	—	„	„	„	—	—
17	17	0 9	0 9	—	„	„	—	—	—
18	30	0 8	0 8	—	„	„	—	Spontaneous pneumothorax.	—
19	23	0 8	0 8	—	„	Fair.	—	—	—

being made to render it selective by carefully controlled refills and spacing; the second pneumothorax is then induced and established along the lines already suggested.

In some instances circumstances may combine to render this preliminary period of conservative treatment before the induction of the second pneumothorax either impossible or inadvisable. The temperament and morale of the patient must be considered, and these alone may preclude the recommendation of the fuller but more leisurely course, especially if a previously prolonged course of hospital or sanatorium treatment has entailed a severe drain on his mental and financial resources. Again, economic conditions and the exigencies of modern industrialism may demand his return to work at the earliest possible moment. It would then indeed be bad treatment to detain him and stabilise his tuberculosis at the cost of the loss of that very best of aids to successful after-care, congenial and financially stable employment, which might be ensured by an abbreviated treatment. Such a course, in these circumstances, is much more likely to be rewarded with real success than the full régime followed by domestic and financial insecurity.

The stabilisation and maintenance of a simultaneous bilateral pneumothorax calls for the greatest care. It is advisable that the collapse should be controlled by the same physician for as long as possible, and it is very important that the person who performs the refills should always be present at the screening. The degree of collapse is controlled by frequent observation on the screen—at least once weekly—and by the general clinical condition and symptoms, both subjective and objective, of the patient. In our experience it is advisable whenever possible to refill both sides at the same session. This is preferable because, first, there seems to be less likelihood of the occurrence of refill reactions; secondly, patients aver that there is less discomfort after the refills; and, thirdly, much time and inconvenience is saved when he has left the institution and returned to work.

Difficulties are often experienced in the early stages in maintaining a satisfactory degree of collapse on the two sides. Despite frequent observation on the screen and careful filling, the depth of the collapse

CASES TREATED WITH SIMULTANEOUS BILATERAL ARTIFICIAL PNEUMOTHORAX—(*continued*)

CASES DEAD—GROUP A

Case.	Age.	Years from induction of bilateral A.P. till death.	Years bilateral A.P. maintained.	Years from abandonment of one or both sides till death.	Reasons for abandonment.	Immediate result.	Complications.	Later.
		yr. mth.	yr. mth.	yr. mth.				
1	18	1 8	0 6	1 2	Obliteration.	Fair.	Hæmoptysis.	Fluid in L. after R. had obliterated.
2	19	1 7	0 4	1 3	Unsatisfactory collapse.	Good.	—	Cavitation occurred in L. lung after L.A.P. was abandoned.
3	20	1 11	0 7	1 4	Fluid.	"	Fluid	Spread of disease.
4	16	5 0	4 0	1 0	Physician's choice.	"	—	Died as a result of an accident; well and working shortly before.
5	18	2 5	0 7	1 10	Acute fluid onset.	Fair.	Fluid.	Spread of disease.
6	27	2 6	?	?	?	Good.	—	—
7	27	2 6	0 6	2 0	Obliteration.	"	—	Fluid in L. after R. had obliterated. R. phrenicectomy later.
8	16	2 7	0 7	2 0	Patient too ill.	Bad.	—	—
					CASES DEAD—GROUP B			
1	18	1 0	0 9	0 3	Dyspnœa, loss of weight, pleuritis.	Bad.	Pleuritis.	Spread of disease.
2	23	0 11	0 5	0 6	Fluid, hæmoptysis, dyspnœa.	"	Fluid in R., hæmoptysis from R. lung, dyspnœa ÷ ÷.	Rapid spread of disease.
3	28	4 0	2 6	1 6	Obliteration.	Good.	—	Pregnancy, labour, spread of disease.
4	15	2 0	1 0	1 0	Physician's choice.	"	—	Cavitation in R. lung. R.A.P. re-established after expansion but without collapse of patent cavity. Died from hæmoptysis.

on either side may vary considerably from week to week, but by slight adjustments of volumes, according to screen appearance, a stable condition will be reached when both sides can be refilled at constant intervals with constant amounts with only a minimal variation in the collapse. Bilateral pneumothoraces should, as a general rule, be refilled on a volume basis, and very little attention should be paid to small variations in the final pressures. Quantity, not pressure, should be the keyword.

COMPLICATIONS

The complications that occur in a bilateral artificial pneumothorax are of necessity similar to those in the unilateral type. Bearing in mind the greatly diminished vital capacity, any complication that tends to reduce this still further must be regarded as of comparatively grave import.

Effusion.—In almost every case of bilateral pneumothorax a small collection of fluid—the so-called "puddle"—is seen at some period of the collapse. These "puddles" are almost always unaccompanied by any symptoms and are without significance. In a few cases (11 in our series of 44) larger collections appeared with or without accompanying constitutional disturbance, in the same manner as in a unilateral collapse. In other cases, there is, again as in the unilateral type, a sharp sudden onset with rise of temperature, pain, and dyspnœa. This dyspnœa may be mainly reflex and controllable by the exhibition of sedatives. Only on rare occasions does cyanosis and dyspnœa call for decompression and removal of air during the actual onset.

During the formation of the effusion close observation must be kept on the screen appearance of the collapse and the clinical condition of the patient. If there are no signs of distress the further procedure depends on the volume of the effusion. Even when one pneumothorax cavity is half filled with fluid the bilateral collapse can usually be maintained. Should the cavity proceed to fill still further, the question of gas-replacement, repeated if necessary, may arise; or the pneumothorax on this side may be abandoned, leaving the fluid to maintain the collapse until absorption takes place, the contralateral collapse being continued. If, on the other hand, signs of acute distress appear, active interference becomes essential. The precise method to be adopted to relieve the patient must be decided according to the merits of the case—simple aspiration, gas-replacement of the fluid, and decompression of the opposite side all have their uses. Fortunately, resort to such interference, which will probably eventually lead to the abandonment of one or other of the pneumothoraces, is not often indicated. It is remarkable what little discomfort a large effusion on one side may cause.

Refill reactions.—Another frequent but usually minor complication is the occurrence of refill reactions. Only rarely are these serious enough to assume any real importance. When they are severe the pyrexia, which may persist for several days, and the general malaise necessitate an irritating rest after each refill, thus sometimes compelling abandonment of one or both sides on economic or psychological grounds. These reactions may appear at any time during the maintenance of the pneumothorax, but fortunately are usually of an evanescent nature. A variety of methods have been advocated from time to time with a view to minimising or preventing them, with varying degrees of success—e.g., refilling both sides at the same session; refilling at a different site each time; or slow refills with a very fine needle.

Spontaneous pneumothorax.—A rather more frightening complication is the occurrence of a spontaneous pneumothorax (3 in our series), but even this accident is not so grave as one might anticipate. The immediate treatment depends on the presence or absence of cyanosis. Should this be absent, active treatment will probably be unnecessary. The dyspnœa which is mainly reflex can usually be relieved by giving morphia and by reassuring the patient. In the presence of cyanosis, decompression—repeated if necessary—will usually suffice. Much more dangerous is the possible subsequent development of a pyo-pneumothorax.

RESULTS

In assessing the value of this form of treatment we would point out that the available material on which this investigation is based is too small and covers too short a period to allow of definite statistical evidence of the remote results. Although several of the Group A cases had their treatment commenced several years ago—the longest seven years—it is only within the last three years that this method of treatment has been used on an increasingly large scale, especially in the Group B cases. For this reason we have thought it advisable to concentrate chiefly upon the immediate response—namely, that at the termination of the full sanatorium course—bearing in mind the gravity of the condition of the majority of the patients on whom the operation was performed.

In Group A we find that 20 cases have been discharged from the sanatorium: of these 17 were sufficiently fit and stable to carry out routine Grade 3 or 4,[1] which entails fairly heavy manual work. One case reached Grade 1—i.e., light manual work—but the other 2 cases did not respond sufficiently to warrant continuation of this treatment. At the same time, only 50 per cent. of the total Group A cases reported any symptoms whatever on discharge, these consisting only of slight cough with a trace of sputum or a very mild dyspnœa.

In Group B, 22 cases have been discharged: 16 reached Grade 3 or 4; 3 reached Grade 1 or 2; 3 cases were unsatisfactory. In this group 70 per cent. were symptomless on discharge.

One of the most striking features of these cases was the almost complete absence of dyspnœa in the majority when stabilised, and even in those cases in which it was reported present it was was nearly always so slight as to cause practically no inconvenience. It is an amazing sight to see men with a simultaneous bilateral pneumothorax working on our pig-farm and swinging heavy buckets of swill about with surprising nonchalance and a general air of well-being. Several of our ex-patients are on full nursing duty—no light task.

Every year that passes in the life of the consumptive tends to introduce more and more extraneous factors which may interfere with the favourable course of his disease. Economic circumstances, changes of environment, changes of domicile, perhaps necessitating less careful supervision, all these must influence the eventual result. Again, opinions vary as to the length of time an artificial pneumothorax should be maintained; some will abandon it in two or three years on a "time" basis, others advocate maintenance indefinitely as we do, in the absence of complications, in an effort to avoid "late cavitation" in the re-expanded lung. Pathological changes may terminate the collapse—the physician being "always at the mercy of the behaviour of the pleura"—obliteration or large effusions deciding the issue. By reason of all these variables and the shortness of our series we decided that it would be of little value to analyse the remote results too closely, but the following facts may be of interest.

In Group A, 13 patients are still alive and 8 have died. Of those alive, 6 have survived the induction of the second pneumothorax by more than five years, and of the remainder 6 have survived for two years or longer. One patient is of less than two years' standing. Of those who have died, 3 failed to survive for two years after the induction of the second pneumothorax, and 1 patient was killed in an accident after having kept well for over five years.

In Group B, 19 patients are still alive and 4 have died. Of those alive, 5 have survived the induction of the second pneumothorax by more than five years. Of the remainder, 2 have survived for two years or longer and 12 are of less than two years' standing. In this group 3 patients failed to survive for two years after the induction of the second pneumothorax.

DISCUSSION

In appraising the value of this form of treatment it must be appreciated that in our Group A cases it was used as the only available measure of treatment, the extent and type of disease being such that the expectation of life was short. A two-year survival can therefore be regarded as an excellent result.

In Group B the same would apply to many of the cases; yet in others the prognosis before the induction of the second pneumothorax was much more favourable. Indeed, in some of these patients the spread of disease was detected and the treatment instituted on radiological evidence alone, before the appearance of symptoms or physical signs. Therefore in this group it is more difficult to assess the particular value of the treatment, although the results are certainly much better than would have been the case if the original artificial pneumothorax had been abandoned in order to allow collapse of the contralateral side.

Simultaneous collapse therapy is a powerful weapon in the hands of the physician who can master its technique and appreciate its problems. Though an easy and practical method of treatment it calls for the exercise of great patience and no little trouble on the part of the physician, and for the fullest coöperation from the patient. In view of the excellent results obtainable, this operation calls insistently for further consideration and wider adoption in this country. Many more lives might be saved and many financial and economic problems solved by its judicious use in selected cases of phthisis.

We wish to tender our acknowledgment and thanks to Dr. R. C. Wingfield, medical superintendent of the sanatorium, for his helpful criticisms; to the physicians of the Brompton Hospital for permission to utilise their records of the cases before admission and following discharge from the sanatorium; and to the staff of the statistical department at Brompton Hospital for their invaluable assistance in tracing patients who are no longer under treatment at the hospital.

ACUTE PHLEGMONOUS APPENDICITIS

PRODUCED BY INTRAVENOUS ADMINISTRATION OF HISTAMINE

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PREVIOUS experiments have shown [1-3] that diverse nocuous agents, such as surgical or nervous shock, intoxication with various drugs, excessive muscular exercise, and exposure to cold, elicit a syndrome characterised mainly by œdema formation, adrenal hyperplasia, thymus atrophy, and gastro-intestinal ulcers. These symptoms are more or less independent of the nature of the damaging stimulus, and probably represent a response of the organism to damage as such. The syndrome has been considered to be the expression of a general alarm of the organism when suddenly confronted with a critical situation, and since the purpose and more intimate mechanism of the reaction is still unknown, it has simply been referred to as "the alarm reaction." For reasons discussed elsewhere [2 3] I believe that most of the symptoms of the alarm reaction are caused by histamine or some other pharmacologically related metabolites produced by the tissues under the stimulus of damaging agents such as those mentioned above.

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[1] Wingfield, R. C.: Text-book of Pulmonary Tuberculosis, London, 1929, p. 215.

In these earlier experiments I had already noticed that in the alarm reaction the mucosa of the appendix is frequently the seat of deep ulcers. I wish to recall here that the appendix in the rat is not as sharply demarcated as it is in the human, but as Berry[4] has shown, the distal part of the cæcum, which is surrounded by a slight constriction, corresponds to the appendix. These lesions in the appendix did not seem very remarkable, however, since the entire gastro-intestinal tract was usually covered with innumerable ulcers. Ulcerations in the stomach, the small and large intestine, and the appendix, similar to those seen in the alarm reaction, have also been produced by repeated subcutaneous injections of histamine given over a period of 48 hours, which seemed in good accord with the interpretation of the alarm reaction as the result of an endogenous intoxication with some histamine-like substance.

More recent experiments, however, disclose the rather unexpected fact that a very acute alarm reaction, such as may be produced for instance by the intraperitoneal administration of formaldehyde, lesions the appendix selectively so that an acute phlegmonous, frequently perforating, appendicitis develops without any visible changes in the other viscera. In my first experiment, twelve adult male rats received 0·5 c.cm. of a 4 per cent. formaldehyde solution intraperitoneally. At autopsy 48 hours later, all of these animals showed severe, purulent, phlegmonous inflammations of the appendix which led to perforations (demarcated by adhesions) in three cases. It seems most unlikely that these selective appendicular lesions could have been caused by the injection of the formaldehyde on to the surface of the appendix, for it is most improbable that the drug would have been injected just there by mere coincidence in all twelve cases. Furthermore, an examination of the less severe cases showed that the lesions begin to form from the inside of the appendix, and marked necrosis of the mucosa is seen at a time when the muscularis and serosa are still intact.

If my interpretation of the alarm reaction as an endogenous intoxication with histamine-like metabolites be correct, then these appendicular lesions would be the result of a sudden release of large quantities of histamine by the tissues. In this case it should be possible to reproduce the same lesions by intravenous injections of histamine. This proved to be the case. Twelve adult male rats were injected with 3 c.cm. of a 1 per cent. solution of histamine-dihydrochloride into the jugular vein under light ether anæsthesia. As soon as seven hours after this injection, 11 of the 12 animals had an acute phlegmonous appendicitis without showing any changes in the other viscera, except a very small erosion of the gastric mucosa in one case (see Figs. 1–4). It should be mentioned that these experiments have been performed on the so-called "hooded" black and white rat, for I convinced myself that the results are much less constant, and usually larger doses are required, when a pure white strain of rats is used.

1

2

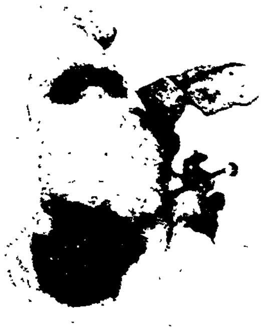

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FIG. 1.—Appendix of a normal rat.

FIG. 2.—Appendix of a rat seven hours after the intravenous injection of 30 mg. of histamine.

FIG. 3.—Inner aspect of the appendix shown in Fig. 1.

FIG. 4.—Inner aspect of the appendix shown in Fig. 2.

It is evident that a secondary infection by bacteria such as are present in the appendix plays an important part in the development of the disease, but this I now believe is a secondary phenomenon. The experiments show that localised lesions may be produced by certain acute types of the alarm reaction, and that the intravenous administration of histamine may selectively affect the appendix without causing any other appreciable morphological changes.

Since my previously reported experiments showed[1–3] that pleural transudates, acute hæmorrhagic lung œdema (not unlike that seen in the stage of red hepatisation of the lungs in pneumonia), intense diarrhœa, &c., may also be seen in certain types of the alarm reaction, it does not seem unlikely that many of the diseases in the ætiology of which exposure to cold has been thought to play a certain part, the so-called *morbus a frigore* of the ancient physicians, are in reality elicited by an alarm reaction which may be caused either by cold or by any other serious general damage inflicted upon the organism. The lesions caused by the alarm reaction would then secondarily open the way to pathogenic micro-organisms present in the damaged organ.

SUMMARY

Experiments on the rat show that intraperitoneal injections of formaldehyde or intravenous injection of histamine affect the appendix selectively and cause a phlegmonous, often perforating, appendicitis. This reaction is considered to be a special type of the alarm reaction.

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BEE VENOM IN RHEUMATIC DISORDERS

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SINCE the earliest days of medicine there has been a popular belief that those who are habitually exposed to the stings of bees escape rheumatism. In country districts to this day it is no uncommon thing for sufferers to allow themselves to be stung. Accordingly attempts have lately been made to produce a stable bee-venom preparation which could be used clinically. This has been given either by transcutaneous injection or by inunction. On the clinical results much has already been written, and like other workers I have tried, I believe, all the British and continental brands on the market. When using those which were directed to be injected the results were uneven and often disappointing. A local reaction was obtained in most cases, but beyond the obvious effects of counter-irritation there was little to demonstrate. With the use of preparations for inunction the results were similarly uneven and attacks of malaise occasionally followed the application. Again counter-irritation alone could have had the same action without the systemic disturbances.

Such was the position when I was asked by Messrs. Hoffmann-La Roche to give an extended clinical trial to a bee venom they had prepared and proposed to market under the name Apicur. Having now treated over 100 cases of neuritis, fibrositis, rheumatoid arthritis, and osteo-arthritis, I regard the results as encouraging enough to deserve report.

The Apicur is supplied in rubber-capped ampoules containing 1 c.cm. of a sterile and stable 1·5/1000 solution of bee venom. A vaccine syringe is used, fitted with a Parke Davis needle No. 55, this being a needle specially made for intracutaneous injection and superior to any others so far found for the purpose. For the first injection 0·1 c.cm. is used, and the dose is increased with each sitting to a maximum of 0·4 c.cm. It is now my custom to distribute the quantity to be given over as many individual punctures as possible, and it will be found easy with 0·4 c.cm. to make at least 55 or 60 punctures. When formerly the punctures were fewer and the injections larger there was a tendency for the local reaction to become unpleasantly severe, with, in a limb, much distal swelling and discoloration. These undesirable effects are never seen when the method of multiple punctures is used. The injections are given intracutaneously over the site of the disability in fibrositic and joint conditions, and along the entire course of the affected nerve and its distributions in cases of neuritis. It has been found useful in brachial neuritis to include the lower five or six cervical vertebral areas and the upper three thoracic.

At the site of the injection a small area of pressure-anæmia is at once noticed, followed rapidly by a spreading weal surrounded by an area of hyperæmia. When multiple punctures are made the weal formation naturally is less than where a larger quantity has been given. In some cases there will be a small amount of bleeding and in all there is an exudation of serous fluid. The patient immediately experiences a burning at the site, followed by itching and slight throbbing. The itching continues intermittently for two or three days, passing off as the area returns to normal. Injections are given every fourth day and do not interfere with other treatment which may be given, it being possible even to massage the site without ill effect. In a few cases it has been noted that the weals, instead of remaining discrete, throw out "pseudopodia" in all directions, and uniting with their neighbours form a network. It has not been necessary to provide a soothing dressing of any kind as the itching is well tolerated. It is found in giving the injections that there are big differences of sensitivity in different areas, the most tender being over the neck and lumbar spines.

The patient's attention, I notice, is at once transferred from his disability to the injections, and as his sensations settle down to a comfortable feeling of heat he usually states that the original pain has gone or has decreased. This declaration is made as a rule after about half an hour. The injections have been given before, during, and after the administration of infra-red rays but no modification of result has been noted. It is seldom necessary to repeat the injections more than four or five times. No general reactions have so far been found, with one exception, which will be noted later. The best results have undoubtedly been obtained in various forms of neuritis and in painful fibrositis, although some of the cases from other groups have reacted well.

ILLUSTRATIVE CASES

CASE 1.—Female, aged 48. Fibrositis. Treated on previous visit with baths, ionisation, and massage. Much benefit. Again similar treatment with the addition of apicur to the painful shoulder muscles. Four sittings given; great additional improvement. The injections were well tolerated although the patient, who has a spina bifida and hyperthyroidism, is very "nervy."

CASE 2.—Female, aged 64. Rheumatoid arthritis for 14 years. Now mainly feet, ankles, and shoulders. Had spa treatment on five occasions without accessories. Given a series of five apicur sittings, with much benefit to the affected parts, especially increased shoulder movement. Much better than after former visits.

CASE 3.—Male, aged 75. Brachial neuritis off and on for the last 20 years. More severe in last two months. Given baths, infra-red and apicur. Immediate improvement with loss of symptoms, more rapidly than would have been expected from the other treatment alone. The patient was not at all robust, but tolerated the full doses of venom without showing the least sign of shock or distress.

CASE 4.—Female, aged 25. Sciatic neuritis. Was treated a year previously with histamine ionisation alone and got much relief. Returned and was given an injection of apicur the first day and a histamine ionisation the next day, and on the third appearance was asked which had given the greater amount of relief. Declared for the venom, which was forthwith continued with good results.

CASE 5.—Female, aged 56. Villous arthritis of knee. Had previously much treatment, electrical and physical, but with little result. Given venom on several widely separated occasions and can now walk farther and better than for many years and has comparatively little pain. All other treatment had been stopped for several months before commencing the venom.

CASE 6.—Male, aged 73. Osteo-arthritis, mainly of hip and knee. Was given four punctures over hip and on the fourth day a similar number round the knee. The hip had reacted normally but round the knee there was much local reaction and pain, with headache. A third injection to the hip produced no disturbance but another to the knee produced an even greater reaction and further venom was declined, although there was undoubtedly more freedom in moving the limb. This is the only case so far which has shown any ill effects, and it must be noted that there was a history of apoplexy and more recently a troublesome disorientation, so the case cannot be regarded as normal.

Several cases of early rheumatoid arthritis and the more acute types have been treated, but as other more usual forms of treatment were mainly relied upon it cannot fairly be claimed that the improvement was due to the venom or otherwise. Further work is being undertaken in these cases.

COMMENT ON RESULTS

As it is little more than a year since I first used apicur it is impossible to gauge the permanency of the results; but it so happens that several of the first patients to receive it have remained during the whole of the intervening time under observation, and from these it is possible to get some idea of what may be expected. In one case, with severe brachial neuritis, pain was mitigated almost at once, and at the end of three sittings it was gone. The original exciting cause remained, and the pain showed signs of returning after about five weeks; but it responded again to one sitting and has continued similarly to return and be relieved. In two other cases, however, one of sciatic neuritis and one of lumbar fibrositis, there has so far been no return of the trouble. These three cases were treated with apicur alone and all had previously received appropriate treatment without more than temporary gain. One other patient was being given a course of another brand of bee venom when a supply of apicur came to hand. When the next injection was due apicur was used without informing the patient of the change, and she immediately exclaimed on the strength she was getting, saying that there was much more stinging. Similarly there was a vastly different report when next she was seen, telling for the first time of a very definite improvement.

Whether the results obtained with apicur are lasting or otherwise, it would have a very real value if it afforded merely a relief which in my experience can be obtained neither by the older methods nor with other bee-venom preparations I have tried. The method presents no technical difficulties and seems to have no contra-indications.

CLINICAL AND LABORATORY NOTES

A CASE OF CHOREA GRAVIS TREATED WITH AVERTIN

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There are few records of the use of Avertin in the treatment of chorea. This is partly because cases severe enough to justify this treatment are rare and partly that the potentialities of avertin are not yet generally recognised.

Gallinek [1] refers to two very severe cases in children in which one basal anæsthetic dose of avertin was given daily for four consecutive days. The movements were controlled and rest was obtained for several hours after each injection, a result which other sedatives had failed to achieve. Westphal [2] describes a very severe case in a man aged 20 who could not sleep because of the severity of the movements and could not be fed because of the involvement of the mouth and throat. He was given 150 g. of a 3 per cent. solution of avertin daily for five consecutive days with a similar good result. Paraldehyde, luminal, and ephedrine were also given over the same period. In the case here described, much larger amounts of avertin over a much longer period had to be given before the condition subsided.

The patient was a girl, aged 11, with nothing relevant in her family history. She had had measles and whooping-cough as a small child, but had no history of rheumatic fever, growing pains, or tonsillitis.

Present illness.—She had been in perfect health until July 12th, 1936, when she went to the seaside for a day and there developed aching pains in the back and legs which lasted four days. After this she did not seem in her usual health, but grew pale and fidgety and began to lose weight. The nervous movements grew gradually worse but she had no more pains. On August 7th the movements became very much worse, and on the day before admission had become so severe that she could not swallow solids and could hardly sleep, speak, or drink. They involved the whole body and were continuous.

State on admission (August 12th).—A thin pale child in a state of continuous choreiform convulsions which involved the whole body. The movements were typical of chorea but of great violence, and no part of the body was still for a moment. The muscles of the face, throat, and mouth were all affected, so that speaking, eating, and drinking were almost impossible. They did not cease for an instant either by day or night, so that sleep was impossible.

On examination there was no sign of infection in the mouth or throat or elsewhere. Temp. 99·4° F., pulse-rate 124, respirations 24–60. The heart appeared to be enlarged half an inch to the left, but showed no other abnormality. No other abnormal signs were found.

Progress and treatment.—During the first 48 hours in hospital, in spite of rest in a darkened room, subcutaneous hyoscine and luminal, and sodium bromide per rectum the movements became more violent. It was impossible to give drugs or food by the mouth and the patient was becoming rapidly weaker, so that it was clear that unless she could be controlled she would quickly die from exhaustion. The problem was similar to that presented by a severe case of tetanus and for this reason it was decided to try avertin. The weight was estimated at 25 kg. (this proved subsequently to be correct) and 2·5 c.cm. of avertin (0·1 g. per kg.) was given rectally under chloroform anæsthesia. The movements were completely controlled and the patient was asleep within a quarter of an hour of giving the avertin and the movements were completely controlled for four hours after which they gradually returned with their former violence. Treatment with avertin was therefore continued, the dosage being regulated by the severity of the returning movements. Food was given by nasal tube. The tube used was a Ryle's tube with the weight removed. It was left in position for most of the next ten days, only being removed once or twice daily for short periods. Cyanosis was relieved by continuous warmed nasal oxygen and injections of atropine sulphate gr. 1/150, at first four hourly but later less frequently.

Avertin treatment had to be continued for 21 days, the frequency of doses being increased to begin with and then gradually lessened. (For details of dosage see Table.)

Table showing Dosage of Avertin

Day of disease (after admission).	No. of doses.	C.cm. per dose.	Total avertin (in 24 hours).	Day of disease (after admission).	No. of doses.	C.cm. per dose.	Total avertin (in 24 hours).
3	1	2·5	2·5	13	3	3	9
4	2	2·5	5	14	1	3	3
5	1	2	2	15	2	3	6
6	3	2·5	7·5	16	0	..	..
7	3	2·5	7·5	17	2	3	6
8	4	2·5	10	18	1	3	3
9	5	2·5	9·5*	19	0	..	..
10	5	2·5	12·5	20	2	3	6
11	4	2·5 (2)	..	21	0	..	..
		3 (2)	9†	22	2	3	6
12	3	3	8‡	23	1	3	3

Totals: Doses, 45. Avertin in 21 days, 115·5 c.cm.
Weight of patient, 25 kg.
* 3 c.cm. returned. † 2 c.cm. returned. ‡ 1 c.cm. returned.

In 21 days 115 c.cm. was given and 73 c.cm. of this was given in eight consecutive days—an average of 9 c.cm. per day or approximately 3½ basal anæsthetic doses per day. Cyanosis was the most troublesome symptom but could be controlled by the measures described. On the third day of avertin treatment signs of basal congestion developed, the temperature rose to 102° F., the respirations quickened, and there was respiratory difficulty. An attempt to reduce the dose of avertin led to a return of movements with their original violence and so repeated doses were continued regardless of the chest condition. After three days this subsided completely.

During the first three weeks of the illness aspirin grs. 15 was given four-hourly and on two occasions small doses of rectal paraldehyde were also given. The first definite improvement was noticed on August 21st, 7 days after avertin treatment had been begun. On the 23rd she was considerably better and was able to take small amounts of fluid by the mouth. On the 28th she was able to answer simple questions for the first time. By Sept. 22nd the movements had practically ceased.

Lumbar puncture on August 24th showed a normal cerebro-spinal fluid; cells normal, globulin negative, sugar normal, cultures sterile. The lævulose-tolerance test done on Sept. 16th was normal; the resting blood-sugar was 0·09 per cent.; and at consecutive 30 minute intervals after lævulose it was 0·1, 0·1, 0·09, 0·09, 0·09 per cent.

The patient was discharged from hospital apparently well, with no movements and no sign of cardiac trouble, on Oct. 10th.

The method used in treating this patient was the same as that used for a case of tetanus neonatorum recently described in THE LANCET[3] and in other cases of tetanus.[4] Such cases show how very useful avertin may be in controlling severe convulsions due to irritation of the central nervous system. None of the patients have taken any apparent harm from repeated dosage. The child with tetanus neonatorum showed normal growth and health after the acute symptoms of the disease had subsided; when one year old he was robust enough to survive a double mastoid operation and at fifteen months he was a healthy and intelligent child. In this patient with chorea there were no signs of any ill effects on discharge from hospital and the lævulose-tolerance test done before discharge showed no evidence of liver damage.

R. E. Hope Simpson[5] has recorded the successful use of avertin in two cases of influenzal meningitis (Pfeiffer's bacillus) in two children aged 9 and 12. In both cases avertin was used in full doses three or four times every 24 hours, in the younger for four and in the older for seven consecutive days. After each dose the head retraction and restlessness were controlled for four or five hours after which they returned. After the initial lumbar puncture no other treatment was used. Both children made a complete recovery.

Such results suggest that avertin may be the sedative of choice in cases of prolonged cerebral irritation which endanger life from exhaustion. In conditions like severe tetanus, status epilepticus, Jacksonian epilepsy, chorea gravis, and prolonged convulsions in meningitis, when milder sedatives fail, avertin used with discretion is probably less dangerous than uncontrolled cerebral irritation on the one hand or the intermittent use of inhalation anæsthetics on the other.

The dangers of giving repeated doses in this way are not yet known and therefore they should be used with caution and care when other methods have failed or would certainly fail. It is not yet known how far some patients may be particularly susceptible to large and repeated doses. Even with this unknown risk however there must be many cases of prolonged irritation of the central nervous system where the risks of using avertin are less than the risks of withholding it.

I am indebted to Dr. C. G. L. Wolf for the lævulose-tolerance test.

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EFFECT OF ASCORBIC ACID ON THE CHEMICAL TESTS FOR BLOOD

BY JOHN F. BARRETT, B.Sc.

(From the Courtauld Institute of Biochemistry, Middlesex Hospital, London)

IN the following note attention is drawn to the interference of ascorbic acid with the benzidine and guaiacum tests for blood in pathological specimens.

I have often observed that the chemical tests for blood are much less sensitive when applied directly to urine than when an ethereal extract of boiled and acidified urine is used. In the case of fæces, specimens have been encountered which, when suspended in water and boiled, had the property of discharging the blue colours of positive benzidine and guaiacum tests. It was noted that most of these specimens contained chlorophyll, and I found that an extract of cabbage leaves had this property in marked degree, while fruit juices reacted similarly. The strong reducing power exhibited by fruit and vegetable extracts and by such specimens of fæces is, I suggest, due to the presence of ascorbic acid. In support of this suggestion is the fact that a small quantity of an aqueous solution of ascorbic acid, containing 1 mg. per 100 c.cm., will discharge the colour of a perceptibly blue guaiacum solution. The reaction with benzidine is similar, the blue colour in this case changing to a light brown.

It follows from these observations that, when the specimen is tested without preliminary extraction with ether, there may be present sufficient ascorbic acid or other strong reducing substance to mask the presence of a significant quantity of blood. Ascorbic acid and the reducing substance encountered in the fæces are not extracted by ether from acid solution. It is highly desirable, therefore, that all pathological specimens to be tested for blood by chemical means should be boiled, acidified with acetic acid, and extracted with ether. The blood pigment, if present, dissolves in the ether. At present this technique is employed in order to eliminate false positive reactions due to iodides and oxidising substances in urine, but the method is not in general use.

MANAGEMENT OF EARLY INFANCY

IN a paper read before the Medical Society of Individual Psychology on Nov. 12th, Dr. JOYCE PARTRIDGE spoke of the importance of this stage of life as being the time when the foundations of many of the neuroses are laid. The main source of difficulty was always a breakdown of the normal mother-baby relationship. The cultured mother was at a disadvantage when compared with the natural mother who simply depended on her instincts. Civilisation made it more difficult to act in an instinctive and intuitive manner, and her baby was liable to suffer in consequence from the lack of a feeling of being at one with her. Dr. Partridge put forward the following rules for normal mothers anxious to give their babies the best possible start in life from the psychological point of view: (1) Remember that in the matter of your unborn baby's sex the chances are even. (2) Don't be afraid to follow maternal instinct and intuition; in other words, give scope to your love for your baby, and don't bring him up by rule of thumb. (3) Breast-feed your baby for at least six months. (4) Never leave him alone to cry. (5) Be as much as possible within earshot of him during the early weeks and months of his life. (6) Never in any circumstances scold him nor allow anyone else to scold him for wetting or soiling napkins or any other place. (7) If you must have a nannie, choose one who is your second in command, not one who will make you hers.

MEDICAL SOCIETIES

HUNTERIAN SOCIETY

At the meeting of this society on Nov. 16th, held at Cutler's Hall, City, under the presidency of Mr. H. L. Attwater, the subject of debate was the motion

That the Practice of Voluntary Euthanasia would be Unjustifiable

Dr. Killick Millard (hon. secretary of the Euthanasia Legalisation Society) explained briefly the provisions of the Bill on the subject which had been introduced by Lord Ponsonby into the House of Lords, the second reading having been fixed for Dec. 1st. In spite of all that modern medicine, surgery, and radiology could do, great numbers of human beings still ended their days by a slow and agonisingly painful illness, death coming from exhaustion at the end of it. Euthanasia meant easy death, and voluntary euthanasia was all that was being advocated—i.e., the carrying out of that measure when desired by the patient. It was not applicable to imbeciles and idiots, because they could not be judged to have the power of decision. Neither did it apply to those who had not attained their majority, nor to old people who had become a burden to their relatives. It was intended especially for those suffering from an incurable disease, with severe pain, so that a slow, painful, and lingering death should be supplanted by an easy and painless death. It would not be part of the duty of the ordinary doctor to administer euthanasia; a licence for the purpose would have to be taken out, and safe provision was made for the issuing and signing of the necessary certificates. When this euthanasia had been brought about, it would not be possible to say the patient had died a violent death, and therefore no inquest would be necessary. Euthanasia was essentially a social problem, as it concerned every human being, and he believed it would be looked upon at a future date as one of the great reforms of our era. An increasing number of people were feeling that it did not outrage the highest traditions of civilisation.

Dr. G. Roche Lynch pointed out that he was speaking as a private person and not in any official capacity. Certain aspects of the question were worthy of consideration. First, he wondered how many patients suffering from a painful and incurable disease who asked their doctor to put an end to their sufferings really expressed their true feelings when making the request. Was not the desire to continue living one of man's greatest impulses, second only to the procreative instinct? Even if he was sincere in his wish for euthanasia at one time, it might well be that shortly afterwards that wish had either ceased or was much modified. A case quoted by Hammond (*Practitioner*, April, 1934) would illustrate that: A man dying of an inoperable cancer of the bladder repeatedly begged his doctor to give him a dose of morphine sufficient to end his sufferings; but although he knew that in a drawer within his reach was enough morphine to kill many men, he made no attempt to take it. Second, there was no doubt that to-day euthanasia was practised by medical men in this country. He had no reason to think it was not done in a proper and honourable way; was it not better to leave undisturbed a practice which had been carried out from time immemorial? Third, if there was need for legislation on the subject, it was necessary to be logical and regularise the medical man's position. Both therapeutic abortion and the destruction of monsters at birth should be made legal acts. Assuming, however, that there was need for legislation on euthanasia, the provisions of the Bill under discussion would in his opinion defeat its objects by its elaborate requirements. There must be first an application in documentary form by the sufferer with the necessary witnesses to the signature, then two independent medical certificates. After these had been sent to the referee, he must then personally visit the patient, and later on an appointed day the euthanasia administrator would visit the patient and administer the lethal drug. This meant that the patient, having expressed his desire, must await, in an agony of suspense which might be likened to that of a condemned criminal, the actual release from life. And it was not to be administered by his own family doctor. Surely it was better for his doctor on one day unknown to him to give him a drug which would make him sleep and never wake up. As the method of euthanasia was to be prescribed could it always be certain in every case? What more terrible thing could happen than for the patient to wake up again? He had heard of one case of a woman who at one stage was receiving 90 grains of morphine to allay pain. Euthanasia, even voluntary, was pregnant with criminal possibilities, and any Act that was passed would have to have adequate safeguards. At the present time he was unable to offer any constructive propositions which would do this and at the same time permit of euthanasia being practised by legislation on more humanitarian lines.

Canon H. Anson (Master of the Temple) said he found it difficult to understand exactly on what ground the opposition to the Bill on the subject rested. Some declared that many doctors already carried out euthanasia in suitable cases on their own responsibility. That, he felt, was a risky proceeding; it would be more satisfactory to have legal safeguards. There were more criminal possibilities without than with such legal recognition and safeguard. And he thought it was bad for the doctor to pass on to the patient the responsibility for ending the life of the latter. Liberty to exercise choice regarding the birth of individuals was conceded, why should there not be equal liberty to end a life whose only prospect was continual agonising pain from an incurable disease? Missionaries in the tropics were often told that if they stayed there they could not live long; yet they preferred it to prolonging their lives in more congenial surroundings. Euthanasia should be brought about only under the best medical advice. Many people did not fear death; what they dreaded was dragging on in practically intolerable pain.

Mr. Gilbert Ryle, speaking as a moral philosopher, wished to state a case against the legalisation of euthanasia and against the conventionalisation of it —i.e., against making it a part of the recognised code of medicine even though it might not be legally legalised. There was, first, the sanctity of life; no man was justified in taking the life of another for the killer's pleasure or advantage. There was a risk in every serious operation, as there was in many actions in daily life, and many actions were the better for having a risk in them; even motor-driving in the streets carried a risk of death, either to the driver or to pedestrians. He did not base any part of his case on the statement he had heard put forward that suffering was always or could be by its nature ennobling; in many cases certainly it was nothing of the kind. In objecting to the legalising of euthanasia he realised there might be special cases in which the doctor could facilitate the suicide of another man; it might sometimes be considered by a friend to be his duty to shorten the life of his friend, and a doctor might stand in that relation to his patient. But such isolated cases did not alter his general feeling. It was conceivable that a patient having fits of melancholia might wish his life ended in one of his acute fits of depression, whereas in a brighter period he might have no such thoughts. Intimidation, even blackmail, might hurry a decision to have euthanasia if it were legalised. A man might have such keen commiseration for his wife and others in his family on account of the anguish his suffering caused them that, if it were legal, he would possibly ask for euthanasia when in other conditions he would be willing to endure his agony. And doctors must differ greatly as to what was the intensity of suffering of the patient, and even as to the curability of certain diseases. Though taking life might be justifiable in certain extreme cases of suffering he was against any attempt to set up a legalised set of rules to govern such conduct; any such code would be open to much abuse, and would frequently break down in practice.

Sir WALTER LANGDON-BROWN remarked that the beginning and the end of life were naturally charged with an intense emotional content for us all; therefore the subject should be approached with due regard for the views of others. On such a topic as this it was natural that public opinion should move slowly, but it was moving now. In his boyhood cremation was regarded with horror, and Charles Bradlaugh and Annie Besant were imprisoned for advocating birth control, whereas at the present day birth control was the subject of a circular from the Ministry of Health. Voluntary sterilisation, also, was the subject of official literature from the Board of Control. He was indifferent as to the immediate fate of the present Bill, as it would be a mistake to try to rush the matter. The word "voluntary" should be noted. The possibility of the dethronement of liberty always caused alarm, but liberty must not be carried to the extent of interfering with other people in the social organism; it did not mean one had the right to prevent other people from doing what they believed to be right because one thought it was wrong. Had one the right to refuse an old man means to escape from suffering abominable and continuous pain caused by a hopeless disease? Some went so far as to say that medical progress might be facilitated by refusing voluntary euthanasia; the suggestion implied a mass experimentation on human beings from which he shrank. Relatives of dying people showed two kinds of reaction; one was the desire to prolong life to the end, however bitter that end might be. There the physician's duty was clear; he must do it if he can. The other reaction was the wish that the patient might be spared all unnecessary suffering, the physician being told, in effect, "Don't try to prolong life if the position is hopeless." A disease running a slow and painful course to an inevitable end was a horrible issue, made worse if the patient longed for death; worse than death was the condition of a patient reduced to a vegetative state below that of the average animal. Dr. Roche Lynch had said many patients expressed a wish to die without really meaning it, and then set out to show that the safeguards proposed in the Bill were unsuitable. That was followed by the admission that irregular administration of euthanasia was constantly being practised in the profession, and that this might be preferable to the legalised practice provided for in the proposed Bill. That, it seemed to Sir Walter, was assuming a very grave responsibility on the score of malpraxis. He also objected to Mr. Ryle's suggestion that the doctor was unable to judge as to the severity or curability of a condition; he should be conceded the right to judge when a patient should be granted euthanasia if he desired it.

Dr. N. PINES said he had been surprised to hear that some doctors practised euthanasia privately. A case must be very bad indeed to justify that. It was, however, more merciful to carry out euthanasia than to allow a death to be slow and agonising.

A general practitioner said many people suffering ghastly pain would not end their suffering by death, even though means might be available. He had been carrying out euthanasia in very severe cases ever since he had been in practice.

Mrs. HODSON said not many practitioners had the courage to undertake such a responsibility, and she admired those who had.

Mr. WILLIAM IBBOTSON, speaking as a surgeon, held that it was not difficult for the doctor to decide, in his own mind, what was the right thing to do when patients for whom there was no hope were suffering intensely.

Dr. C. COTTER said surreptitious euthanasia carried out by doctors was contrary to the whole scheme of the relationship between a patient and his doctor. In view of the implicit trust imposed in the doctor, the latter had no right to decide for his patient in such an issue.

Dr. P. B. SPURGIN agreed that legalised murder or euthanasia was contrary to all the tenets of the medical profession. Who was to decide when pain was intolerable? Even when the disease was incurable drug therapy could be so regulated that its cumulative effect was to produce a comfortable instead of an agonising ending.

A barrister pointed out that medical practitioners who practised euthanasia were acting contrary to the law. If only to relieve doctors faced with terrible cases from their dilemma he thought it eminently desirable that such a Bill as that now projected should become law.

Dr. A. BENJAMIN said it was no argument against a proposed measure to say it might be abused; any good thing could be abused. If euthanasia was made legal, it could be carried out only if the patient asked for it. His own view was that such a law would increase confidence between doctor and patient, as the patient would feel that if enduring intense suffering, with no hope of cure, he had a friend at hand who would end it.

Dr. STOLKIND objected to the idea of legalising voluntary euthanasia.

Mr. A. E. ROCHE contended that the function of the doctor when a patient's disease was fatal was to deaden the pain, not to deaden the patient. He had heard it said that three things were chiefly used in severe cases: alcohol to induce sleep, opium to deaden the pain, castor oil to counteract the constipation produced by the opium.

Dr. MILLARD, in a brief reply, pointed out that the word "intolerable" in reference to pain had been expressly avoided in the Bill.

Mr. RYLE also replied, contending that the legalising of euthanasia would make possible abuses which would be dangerous to society.

Prof. GREY TURNER, in thanking the speakers, said he was not afraid of this Bill; even if it was passed he felt certain it would be a dead letter.

REVIEWS AND NOTICES OF BOOKS

Surgery for Dental Students

By PHILIP H. MITCHINER, M.D., M.S., F.R.C.S., Hon. Surgeon to H.M. The King; Surgeon and Lecturer in Surgery, St. Thomas's Hospital; CLEMENT E. SHATTOCK, M.D., M.S., F.R.C.S., Surgeon and Lecturer in Surgery, Royal Free Hospital; EDWARD G. SLESINGER, O.B.E., M.S., B.Sc., F.R.C.S.; Surgeon and Lecturer in Surgery, Guy's Hospital; and CECIL P. G. WAKELEY, D.Sc., F.R.C.S., F.R.S.E., Senior Surgeon and Lecturer in Surgery, King's College Hospital. London: Baillière, Tindall and Cox. 1936. Pp. 364. 12*s.* 6*d.*

THE object of this book is to provide the dental student with a brief account of general surgery, sufficient to cover the requirements of the several examining boards in dental surgery. It has the advantage of being written by a group of men, all of whom are either attached to a dental school or have experience in examining dental students. In a remarkable fashion the authors have compressed a great mass of material into a small compass, presenting the whole range of surgery in a simple straightforward manner and, what is extremely important, in a way intelligible to those who have a minimum of anatomical and physiological knowledge. Particular attention has been paid to those allied or associated conditions which the dental practitioner is liable to meet in the practice of his profession. The book is very well printed and illustrated and should become popular amongst dental students.

Exophthalmic Goitre and its Medical Treatment

Second edition. By ISRAEL BRAM, M.D., Medical Director, Bram Institute for the Treatment of Goitre and Other Diseases of the Ductless Glands, Upland, Pa. London: Henry Kimpton. 1936. Pp. 456. 25*s.*

OF recent years most authorities on diseases of the thyroid gland have abandoned as untenable Plummer's hypothesis that exophthalmic goitre and toxic adenoma are distinct diseases. Dr. Bram, who has had a large experience of thyroid disorders, still holds the generally discarded view. The arguments which he adduces in support thereof are not convincing. He fails to appreciate the reasons why the manifestations of hyperthyroidism may be slight when Graves's disease occurs in older people with a nodular goitre (so-called toxic adenoma). There may be (1) degenerative changes in the thyroid, (2) numerous undifferentiated nodules which react but slightly, and (3) little active thyroid tissue to respond to the stimulus. Nor does Dr. Bram take account of the fact that cardiac conditions, such as auricular fibrillation, often dominate the clinical picture in "toxic adenoma" owing to the extra load of slight hyperthyroidism on a myocardium already damaged by pre-existing arterio-sclerotic or rheumatic changes. If the presence of adenoma is a factor predisposing its victims to "toxic adenoma," as Dr. Bram affirms, it is surprising that the latter does not occur more frequently in regions of endemic goitre, where it is comparatively uncommon.

The chapters which deal with the signs and symptoms of Graves's disease are in general admirable. Their only flaw is the rather unnecessary division of the condition into some two dozen different types; such a procedure could be unending in almost any disease. As to management, the author emphasises the need of medical treatment especially on the psychotherapeutic side; most physicians will agree that this is essential in a disease where psychogenic factors often play an important part in ætiology. Dr. Bram rightly deplores the wholesale surgical measures often adopted, but English physicians would consider that he goes too far in his assertion that little over 2 per cent. of patients with Graves's disease should be submitted to thyroidectomy. He backs up his opinion by a claim that of 2600 cases treated solely by medical means 90 per cent. were cured, and most of the remaining 10 per cent. are enjoying complete social and economic usefulness, and that the mortality-rate of 3920 patients so treated was only 0·3 per cent. These figures are remarkable; such a degree of success has not been obtained by competent physicians in this country.

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1. Reactions of Organic Compounds

By WILFRED JOHN HICKINBOTTOM, D.Sc., Ph.D., F.I.C., Lecturer in Chemistry in the University of Birmingham. London: Longmans, Green and Co., Ltd. 1936. Pp. 449. 16*s.*

2. A Textbook of Organic Chemistry

Third edition revised and extended. By the late Dr. JULIUS SCHMIDT, formerly Professor of Chemistry in the Technische Hochschule, Stuttgart. English edition by H. JORDON RULE, Ph.D., D.Sc., Lecturer in Organic Chemistry, University of Edinburgh. London: Gurney and Jackson. 1936. Pp. 865. 25*s.*

3. Outlines of Organic Chemistry

Second edition. By E. J. HOLMYARD, M.A., M.Sc., D.Litt., F.I.C., Head of the Science Department, Clifton College. London: Edward Arnold and Co. 1936. Pp. 467. 7*s.* 6*d.*

1. Mr. Hickinbottom's book approaches the subject of organic chemistry from an original standpoint. It contains just that blend of theory and practice which invests the rather dry material of the theoretical text-book with the interest of practical applications. Many of the so-called general reactions quoted in text-books are found in practice to have a very limited range and the author has set himself the task where possible of pointing out such limitations. The book is divided into 11 chapters commencing with hydrocarbons and passing on to hydroxy and thiol compounds, ethers and thio-ethers, and so forth to sulphonic and sulphinic acids, sulphones and sulphoxides. A valuable feature is the lavish supply of references throughout the text from both the older and the most recent literature. Preparations with practical details, which are extremely plentiful and varied, are printed in smaller type. An appendix of some twenty odd pages is devoted to a very well-planned scheme for the identification of organic substances. The book may be highly recommended as a really useful contribution to the efficient study of organic chemistry.

2. The previous English edition of Prof. Schmidt's well-known text-book appeared in 1932 and to accord with the advances in knowledge of the chemistry of biologically important substances the sections dealing with the complex polysaccharides, chlorophyll and hæmoglobin, vitamins, sterols, and sex hormones have been revised. Owing to the nature and general scope of the book the accounts are somewhat sketchy,

but will probably suffice for a student reading for a degree in chemistry. The general arrangement remains unaltered and the size of the book has only been increased by some ten pages.

3. In producing a new edition after several reprints of the original edition the author has subjected the text to considerable revision and has brought it up to date, both as regards academic and industrial practice. A new feature is an elementary account of the electronic theory of valency as applied to organic chemistry. The book is illustrated with six plates of distinguished chemists.

Grundriss der inneren Medizin

Tenth edition. By A. VON DOMARUS, a.o. Professor in the University of Berlin; Medical Director of the Horst-Wessel-Krankenhaus in Friedrichshain. Berlin: Julius Springer. 1936. Pp. 681. RM.16.80.

Prof. von Domarus, a pupil of Friedrich Müller, offered the first edition of this book to the German medical student in 1923 as an outline of medicine, a foundation on which to build the mass of knowledge he would acquire in the lecture theatre and in the wards. It has achieved its tenth edition in thirteen years. It is of roughly the same size as the standard text-books used by the English student, and its clear, compact style—for the German language is capable of extraordinary succinctness—packs it full of material. This material is good, and the outlook is in the Müller tradition, clinical and practical. Differences there are, of course, between German and English teaching, such as the apparently greater German belief in the value of various drugs, but in the main the two run parallel. There are short introductory sections through the book on physiological principles and methods of examination. Illustrations are few but useful. The heart section clings too closely to an anatomical classification; an ætiological subdivision is better because it renders possible a description of each variety of heart disease as it affects, or may affect, a patient over a course of years, and gives not only a sounder biological point of view, but a better basis for the patient's management and treatment.

The English student who reads, or hopes to read, German easily, might with advantage keep this book on his shelf and consult it from time to time in parallel with his favourite English text-book.

Strange Places and Strange Peoples

Or Life in the Colonial Service. By Sir REGINALD ST. JOHNSTON, K.C.M.G., M.R.C.S. London: Hutchinson and Co., Ltd, 1936. Pp. 286. 12*s*. 6*d*.

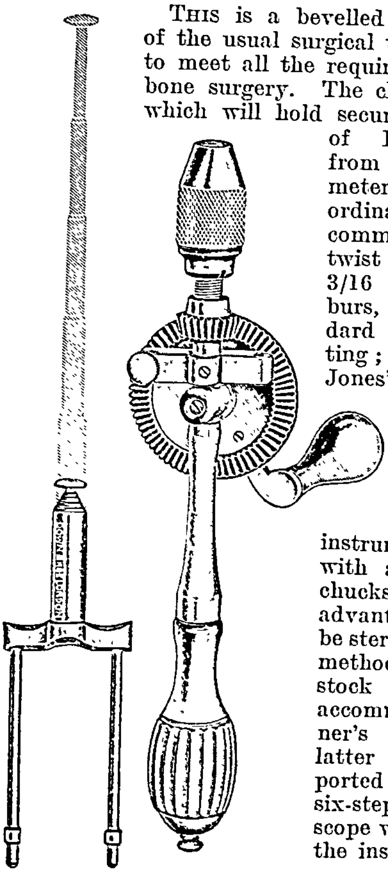
THIS volume is a sequel to one recently reviewed in these columns (THE LANCET, March 21st, p. 668) in which Sir Reginald St. Johnston, barrister, doctor, and administrator, recounted experiences which he had undergone, and which he had obviously enjoyed during 30 years in the Colonial Service. That book was a chronological record of the author's life in the Colonies, and the new volume is an expansion of its predecessor, and includes many entertaining stories showing intimate acquaintance with all aspects of life in the West Indies.

A doctor in the Colonial Service, who became a governor in the Crown Colonies and who read for and was called to the Bar whilst on leave, must be remarkable for his energy and Sir Reginald's favourite motto is "Never say die." He writes easily, as one might imagine he would talk over the dinner-table, and while his style is colloquial, his attractive and optimistic personality pervades every page. The book is not uniformly interesting; some of the incidents narrated are so slight as to amount to little more than lists of distinguished names. But of the author's genuine interest in the places and peoples of the West Indies in and among whom he spent his working life there can be no doubt. Wherever his work took him, he obviously concentrated on finding out all he could about local conditions and devoted himself vigorously to their betterment. Sportsmen will like the story of Admiral Hunt who ended a very official telegram with the words "has the shooting season started yet?" Another of many which might be quoted is the one of the man who electrified a sedate dinner party by proposing the health of "the other woman, not our wife, in whose arms we have . . . enjoyed some of the most blissful moments of our lives. I refer to—our Mothers."

Simplicity, cheerfulness, courage, and an unbounded faith amounting to certainty in the essential rightness of British Imperialism are, perhaps, some of the characteristics which have contributed to the making of a deservedly successful career and, incidentally, of this successful book.

NEW INVENTIONS

A BEVELLED WHEEL-ACTION DRILL



THIS is a bevelled wheel-action drill of the usual surgical type, but modified to meet all the requirements of modern bone surgery. The chuck is of a type which will hold securely: (1) all sizes of Kirschner's wires from 0·75 mm. diameter upwards; (2) ordinary unmounted commercial type Morse's twist drills up to 3/16 in.; (3) drills, burs, &c., with standard ¼ in. surgical fitting; and (4) Watson Jones's (or similar) guide pins for canalised triradiate nails, for fractures of femoral neck. This instrument dispenses with a multiplicity of chucks, and has the advantage that it can be sterilised by ordinary methods. The drill stock is hollow to accommodate Kirschner's wires, but the latter are best supported by means of the six-step collapsible telescope which attaches to the instrument for this purpose.

My ideas have been carefully carried out by Messrs. Down Bros. Ltd., 22A, Cavendish-square, W.1, from whom the drill can be obtained.

D. MCKELVEY, *M.C.*, M.D.Edin., F.R.C.S.Eng.,
Major R.A.M.C.

THE LANCET

LONDON: SATURDAY, NOVEMBER 21, 1936

BASES OF NATIONAL FITNESS

SPEAKING at Guy's Hospital a few weeks ago[1] Lord DAWSON drew attention to the separate parts played by physical education on the one hand and by sport and physical recreation on the other. The distinction is appropriately made at a time when public opinion is awakening to the fact that systematic cultivation of the body is as much a matter of national concern as is education of the mind. "In physical education," Lord DAWSON said, "movements are designed to educate the body in structure and function." This definition, where every word is used pointedly, has two implications. First, physical education is truly a form of education; it is a plan of campaign that has been designed to further the development of the body; its teachers should be specifically trained and must keep the needs of the growing child always in view. Secondly, more than other forms of education, it belongs to the period of growth of the body. Of course it has also a subordinate place in developing the physique of adults and in therapy; but first and foremost its object is to teach the body to form and perform well. Physical education makes use of physical recreation, and sometimes of drill too; but it is not made up of these alone. Games and drill teach leadership, quickness of response, obedience, and discipline, but other means are often required to develop self-control and to meet individual needs.

The Government have given assurances that measures, backed by the Exchequer, are to be taken to promote the physical education and the physique of the youth of the country. In this aim they will be supported by all who care about the health of the people—for whatever reason—and there is no doubt that sickness can be reduced by such measures and by encouraging healthier occupations in leisure hours. If, however, the Government are to gain credit for incorporating physical education in their programme we may fairly ask in return that they shall give mature thought to their plans. Various difficulties beset any hurried provisions. Probably it will not be very hard to find time and staff for more physical education in elementary schools, and with money much-needed apparatus might be added to the present stock of ropes and jumping poles. But the unconsidered imposition of greater demands on the secondary school child, whose time and energies are nowadays devoted to preparation for examinations, might even make matters worse. And then there are the large numbers of adolescents who left school at fourteen, who might, whether employed or otherwise, benefit greatly by physical education. The difficulty here is the dearth of trained teachers and the danger that their numbers will be made up hastily from those trained to drill adults and not at all trained to educate the growing body. This would risk a grave setback to the cause of physical education and of individual development.

Provision for sport and physical recreation is easy to welcome, but, as so many people have pointed out, hard games increase food requirements; and many of those who would gain by playing football can ill spare calories to play it with. The Army authorities, it will be remembered, have lately been conducting grimly successful experiments in which rejected recruits were brought up to standard by a course of physical training plus good food. In last week's debate Lord HORDER spoke, we believe, for the whole of the medical profession when he said that fitness for living, fitness for working, fitness for fighting if it must be, can never be obtained by physical measures: there are still more basic things that are imperative—food, shelter, air, and leisure. And a medical writer in one of the daily newspapers has summed up the national needs with even greater brevity when he put "stomach before brains, food before uniforms, happiness before physique, health before wealth, individual courage before regimented swank." As spokesman for the Government Sir KINGSLEY WOOD has said that they are meaning to take a wide view, and it is to be hoped that their schemes will cover a wide field. For example, the permission still given to industrial concerns to employ boys and girls—no more than children—for ten, twelve, and even fifteen hours a day[2] is utterly inconsistent with a policy of raising the national health; and one of the first steps in carrying out such a policy must be to make the new Factory Act an instrument of drastic reform.

NEW REMEDIES FOR HÆMOPHILIA

WITH its uncontrollable hæmorrhages and its incidence in the royal houses of Europe, hæmophilia fulfils the popular requirements for clinical dramas; and perhaps for this reason it has had more attention than other diseases numerically more serious. Of the many papers lately published on the subject one of the most interesting is the one from Sheffield that appeared in our last issue. In a communication remarkable for the modesty of its claims Dr. TIMPERLEY, Prof. NAISH, and Prof. CLARK record the treatment of thirteen hæmophilics by the parenteral injection of one of two preparations—a substance obtained from egg-white and a "derivative of mucic acid"—and their data leave little doubt that these preparations have a beneficial effect as shown both by the fall in coagulation-time and by clinical improvement.

Dr. TIMPERLEY and his collaborators do not at present discuss the nature of the injected substances nor the way in which they act. The egg-albumin product is obtained by incubation of egg-white with potassium bromide at 37° C. for three days; alcohol is then added and the precipitate removed by filtration, the active substance being recovered from the filtrate by precipitation with acetone. This substance is freed from potassium bromide by dialysis, dried in vacuo at 60° C., and finally redissolved in 0·9 per cent. potassium chloride solution, after which it is ready for injection. The final product thus obtained gives the usual protein reactions, but a later refinement of preparation produced a substance which was apparently protein-free. This egg-albumin derivative was originally prepared by Dr. TIMPERLEY for some other purpose; but on observing that under certain conditions it produced a clear structureless irretractile gel on addition to blood in vitro he thought of its use in hæmophilia. From the method of preparation it seems possible that it is a phospholipin. This would be of great interest inasmuch as substances in this group, such as lecithin and cephalin, are the basis of several proprietary hæmostatics and are usually held to act by disrupting the prothrombin-fibrinogen complex. Intravenous injections of these phospholipins in large amounts have produced intravascular clotting in animals. The use of cephalin in hæmophilia was investigated by HURWITZ and LUCAS [1] who found it a valuable local hæmostatic but inactive when given by mouth, subcutaneously, or intramuscularly. W. H. HOWELL claimed good results from oral administration of cephalin and the substance has also been injected intravenously, though this is risky. A remarkable characteristic of the Sheffield product is that, although coagulant in vitro, it does not prevent the formation of hæmatomata at the site of injection, which suggests that its local action in vivo is weak. However, any detailed discussion of its mode of action is clearly premature until the investigators are able to provide more information about its chemical nature. The second preparation they have used is described as a derivative of mucic acid, and it is difficult to see any relation between this and the previous substance, since mucic acid ($COOH.[CH.OH]_4.COOH$) is a simple oxidation product of galactose. Certain cerebrosides, however, contain this sugar and their oxidation might yield products that could be regarded as mucic acid derivatives. Dr. TIMPERLEY and his colleagues do not give their reasons for the use of this second substance, and we are left in ignorance whether it was a logical development from the egg-albumin derivative or another fortunate inspiration.

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[1] THE LANCET, Oct. 17th, 1936, p. 937.

[2] See the Ann. Rep. of Chief Inspector of Factories for 1935. (Reviewed in THE LANCET, August 1st, 1936, p. 278.)

In commenting on so important a communication it is right to err on the side of hypercriticism, and one may point to flaws in technique whose absence would have made the investigator's position apparently impregnable. In the first place it is stated that the coagulation-time was estimated at room temperature, whereas hæmatologists generally agree that it should be estimated at 37° C. The effect of temperature on the coagulation-time of hæmophilic blood is undoubted and MACFARLANE's curves [2] showed that at 30° C. the time may be 28 per cent. shorter than at 15° C. Room temperature may well vary between these two figures at different times of year. Secondly the modification of the Dale-Laidlaw technique used for the estimation of coagulation-time is open to objection; it has been employed by others (MACFARLANE) and discarded because the loose and heavy shot may on occasion defibrinate the blood. It seems probable that this happened in Case 1 in which no clot was present after 72 hours—a very unusual finding in hæmophilia. While these criticisms do not detract from the importance of the work, experience of many other means of treating hæmophilia enjoins a conservative attitude; and this the Sheffield workers have themselves adopted. Though circumstances have made it advisable for them to issue a report that must still bear some of the marks of a preliminary communication we may confidently hope that more information will soon be forthcoming about the nature of the substances used. Meanwhile, although it is academically satisfying for therapy to have a sound theoretical basis, the fact that the new remedies are still empirical will not spoil their welcome if their usefulness can be confirmed.

THE PHON AND THE BEL

THE Anti-Noise League, of which Lord HORDER is chairman, is becoming recognised as a responsible public body consulted by departments of State and commercial interests. The league has only just completed its second year of life but the report [3] just issued is a fine record of achievement. More than that, the report avoids the preventable dullness which its preamble suggests is even worse than unnecessary noise. The report recalls the important fact that a committee of the Ministry of Transport, of which Dr. KAYE is chairman, has initiated noise tests on a large variety of new motor vehicles. As a result of tests made at the National Physical Laboratory the committee suggests [4] an upper limit of 90 British standard phons for any type of motor vehicle. Two tests are proposed to decide whether motor vehicles conform to this limit—one with the vehicle running at 30 miles an hour at full throttle on the gear preferred by the driver, the other when it is stationary and the engine racing at maximum power speed. The report confirms the common impression that while the majority of ordinary motor-cars do not offend the ear many sports cars and motor bicycles make far too much noise. It is satisfactory to learn that the Minister of Transport has received assurance from the manufacturers that they will not in future put on the market any vehicle the noise of which can be regarded as offensive.

Before noise can be regulated it must be defined and we note that the departmental committee has expressed its results in terms of the "phon"—the new unit of "equivalent loudness" adopted by the British Standards Institution.[5] It is proposed that the term "decibel," formerly employed for expressing sound values, should now be restricted to energy and power relations. The bel signifies a 10-fold increase in energy, two bels a 100-fold increase, three bels a 1000-fold increase, and so on. Provided with such three-league boots we can traverse the enormous intensity range (10 million million fold) of the ear in as few as 13 geometrically progressive steps. But the steps are too big for practical convenience and it is usual to speak of 130 decibels rather than 13 bels. Arithmetically a decibel denotes approximately a 5/4 increase, and this corresponds roughly to the smallest change of intensity which can be detected by the ear under average conditions for sounds of medium frequency and moderate loudness. It is however not the energy of a sound that matters to us but its noisiness, and auditory diagrams of the ear show that while loudness, as appraised by the average ear, is manifestly related to energy, as measured by physical instruments, the two do not normally keep in step, particularly for notes of very high and very low frequencies. At feeble intensities the selective preference of the ear for medium pitched notes is pronounced, and it is only at high intensities that equal increments of energy produce even approximately equal increments in loudness.

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[1] Hurwitz, S. H., and Lucas, W. R.: Arch. Internal Med., 9116, xvii., 543.

[2] Macfarlane, R. G.: St. Bart's. Hosp. Reps., 1935, lxviii., 229.

[3] Noise Abatement. Second annual report of the Anti-Noise League, 66, Victoria-street, London, S.W.1.

[4] Ministry of Transport, Noise Committee. Chairman: G. W. C [illegible] Physics Department, Nation[illegible] Second interim report.

The situation is met by setting up a standard reference scale of loudness obtained by selecting a pure tone of specified frequency and operating it by a progressive series of measured steps of energy. On the British standard scale of loudness the reference tone has a frequency of 1000 cycles per second and an arbitrary zero of energy near the threshold of hearing. If the reference tone is operated by successively increasing decibel steps of energy, the resulting changes of loudness are expressed in numerically identical steps on a scale of phons. That is, if the reference tone is excited by an intensity of *n* decibels above the zero, the loudness is *n* phons. The equivalent loudness of any other sound or noise is evaluated by matching it by ear against the suitably adjusted reference tone, the numerical value of the latter in phons then giving the equivalent loudness of the sound to be measured. By this procedure, which rests on the admitted ability of the average individual to match equality of loudness, has been set up a subjective scale of equivalent loudness, the unit being the phon. It happens that for many common noises the loudness level in phons is numerically equal to the intensity level in decibels. The German phon differs slightly from the British, but the American scale agrees with the British, except that in the U.S.A. it is still customary to use the decibel not only for expressing intensity measurements but also for loudness levels, it being implied in the latter case that the decibel figure quoted refers to the energy level of the standard tone when it matches the sound to be measured.

The introduction of the phon, which has already proved of great service, has come in the nick of time to meet the present public demand for the reasonable abatement of noise. The ability to measure is in fact vital to such a movement. Both objective and subjective noise meters are now commercially available. Purchasers would however do well to demand a calibration certificate by the National Physical Laboratory.

PEACE IN RETIREMENT

The risks of legal liability and litigation, unfortunately inseparable from medical practice, do not come to an end when the practitioner retires. If, on retirement, he hastens to cancel his membership of a professional defence society, he may be putting off his armour prematurely. One of these societies, as the letter from its president (see p. 1234) shows, has produced an excellent scheme under which its protection can be continued by a small lump-sum payment to cover the years of retirement. The amount of the payment varies with the length of previous membership. A practitioner who has been a member for fifteen years, for instance, can become a life member for as little as a guinea. Naturally if, as sometimes may happen, the retired practitioner returns to actual practice, his subscription would need to be readjusted. It is easy, too, to imagine cases on the borderline of retirement where special circumstances will justify special consideration. Without entering into these administrative details, we can commend the general principle of continued protection. We do so because it is probable that medical men do not always realise that, when the time comes for them to leave the surgery and the consulting-room for the last time, they carry with them the risk of legal liabilities. It will be six years before the Statutes of Limitation interpose their beneficent shield to ward off claims for damages in respect of some alleged negligence in the past. The liabilities are nowadays the more extensive and the more complicated because, by a change in the law enacted by Parliament two years ago, personal actions no longer cease at death. Thus the death of a patient, instead of closing a chapter, may positively invite his or her relations to initiate some legal action. The law courts have already found difficulty in defining the application of the new law. There is no need to exaggerate the terrors of litigation which may threaten the retired practitioner; but, if his motto be "Safety First" and if his object be a quiet life, the new scheme of life membership should save him from anxiety.

After seeing the world as a ship's surgeon Mr. Johnston Abraham recorded his experiences in "The Surgeon's Log," published in 1911. We declared the excellence of this book at the time of publication but did not venture to foretell that twenty-five years later it would come of age in a 21st edition of 60,000 copies. Those of Mr. Abraham's colleagues to whom the narrative is still unknown will now be able to purchase it, as a Penguin book, for sixpence.

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[5] See "Glossary of Acoustical Terms and Definitions," published by the B.S.I. 3*s*. 6*d*.

ANNOTATIONS

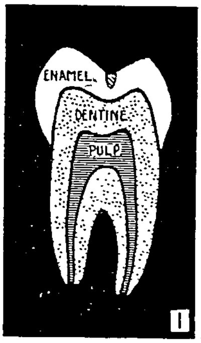
THE NORMAN LOCKYER LECTURE

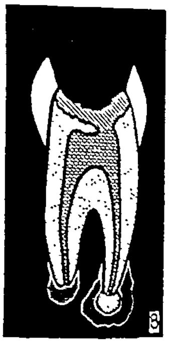
In his lecture last week to the British Science Guild, which is now merged in the British Association, Lord Rutherford surveyed the great tide of advance in the physical sciences during the past forty years, paying high tribute to the inventive capacity of Dr. Gaede which has made it possible to produce a high degree of vacuum by simple mechanical methods. It was the production of high vacua by the mercury pump which led to the discovery of X rays and of cathode rays, and its further development has served the modern industry of electric light bulbs, wireless valves, and rectifiers. Lord Rutherford gave an example of what a good diffusion pump of the oil type will and will not do. Such a pump can reduce the pressure of gas in a vessel to about 10^{-11} atmospheres, but even at such a level of exhaustion the space is hardly beginning to be empty, for each cubic centimetre still contains about 270 million molecules. Nevertheless the molecules can move about with great freedom. At this pressure the mean free path of a molecule is something like 5 kilometres. This means that in a spherical vessel of (say) 100 c.cm. capacity the molecule of gas rebounds from the walls of the vessel about 100,000 times before it collides with any other molecule. Hence a stream of fast electrons or molecules can travel in straight lines through such a rarefied space with only very occasional collisions.

At the end of his lecture Lord Rutherford referred to the possible danger to the community of the unrestricted development of scientific invention. Taking a broad view he is satisfied that the progress of scientific knowledge has been overwhelmingly beneficial to mankind. But scientific men, he thinks, have shown themselves unduly sensitive to criticism. It has been suggested that they should be more active in controlling the wrong use of their discoveries, but except in rare cases Lord Rutherford doubts whether even the most imaginative scientific man is able to foresee the ultimate effect of any discovery. He does however suggest that some control of the rate of application of new ideas or inventions to industry may be desirable to prevent dislocation of capital or labour. It would be an advantage to the State to know the probable changes to be expected in industry before new inventions are put into operation; and for this reason he would like the Government to set up a "prevision committee" of an advisory nature which might graduate the rate of change and so prevent too serious dislocations in the social order. A competent committee of this kind might have foreseen the coming competition between motor and railway transport, and helped to adjust competing claims before the difficulties became acute.

DENTAL CARIES

Sir Francis Acland told the Dental Board at its meeting on Nov. 10th that well over a million copies of the leaflet entitled "The Story of a Tooth" had been asked for by local education authorities; and this was by no means the end, as something like half these authorities had not yet replied to the Board's offer. The excellent feature of this piece of propaganda is that it is incontrovertible; one might almost say both hors de combat and hors concours, for it is strictly outside the arena of conflict about the causation of dental caries. Whatever may be the relation of dental caries to diet or to the care of the mouth, there is no question about the merit of the Dutch boy who prevented the destruction of his country by stopping the first tiny hole in the dyke. The only claim made in "The Story of a Tooth" is as follows: "If boys and girls would let the dentist mend their teeth when the holes are tiny, the story would have been very different, and a lot of trouble would be saved." The narrative is well within the compass of the average boy or girl at school, and is illustrated by nine sections of teeth printed in six colours. Two of these pictures here reproduced on two-thirds of the actual scale give little idea of the effectiveness of the coloured series as it appears in the pamphlet. The idea came from Mr. B. R. Townend, senior dental officer of the West Riding of Yorkshire, who also largely assisted in working it out. The Board has already spent £1400 in producing the first million copies, and is proposing to spend further money on this form of dental health education. And this is well, because the evidence suggests that with existing propaganda it is not possible to achieve much more than what is now being done. Under present conditions the pre-school child is often only referred for dental treatment when the condition of its mouth is so bad as to be endangering its health and when there is nothing for it but to extract the teeth. The situation thus created is admittedly one of the most pressing hygienic problems of our time, for dental caries leads to oral sepsis and then to infected cervical glands and digestive disorders of various kinds. Whether sufficient provision is available or can be obtained for the children who need it may be in doubt, but any such provision is useless unless the danger of neglected teeth is sufficiently appreciated to secure the coöperation both of the parents and the children. For an effective piece of propaganda sincere thanks are due to the Dental Board and to Mr. Townend.





GARGOYLISM

Under this name was recently described[1] a syndrome characterised by a peculiarly grotesque heavy facies, corneal opacities, enlargement of the liver and spleen, mental deficiency, and chondro-osteo-dystrophy, the bone changes resembling more or less closely those seen in the condition described by Morquio and others and now generally known by that author's name. It is probable that Morquio's disease and gargoylism are closely connected, although the widespread nature of the abnormalities in the latter suggest a metabolic disorder—a suggestion supported by the discovery of changes resembling those of juvenile amaurotic idiocy in a case that came to autopsy.[2] Ellis, Sheldon, and Capon[1] reported 7 cases and reviewed 10 collected from the literature, the first 2 having been described in 1929 by Hurler.[3] No doubt others have been recorded, and the fact that during the present year in this country another typical example, and a *forme fruste* in two brothers, have been shown before the Royal Society of Medicine indicates that the condition is less uncommon than might be supposed. Prof. Cornelia de Lange and Dr. Woltring[4] have now described a similar *forme fruste*, in which the corneal opacities were lacking, in two brothers. These boys showed the heavy features and large heads that had suggested the name of gargoylism, though the abnormality was less than in the fully developed syndrome. The mental development was retarded, the liver and spleen were enlarged, and bone changes were present. Examination of the sella turcica, however, failed to show the elongation and enlargement that were found in cases of the full syndrome in which the skull was radiographed; nor did the lumbar vertebræ show the deformity (giving rise to kyphosis) that Ellis, Sheldon, and Capon observed in all their cases.

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[1] Ellis, R. W. B., Sheldon, W., and Capon, N. B.: Quart. Jour. Med., 1936, v., 119.

[2] Tuthill, C. R.: Arch. Neurol. and Psych., 1934, xxxii., 193.

Though the further burdening of medicine with new names and syndromes is generally to be deplored, gargoylism has features at once so peculiar and so widespread as to deserve close attention. The unravelling of this pathological tangle might well help us to understand other congenital familial disorders of bone development.

HOSPITALS AS SOCIAL CAPITAL

FROM the patient's point of view a hospital is a place where he hopes to be restored to health; from the doctor's, a place for the exercise of professional skill and the acquisition and extension of knowledge. To the business man and the taxpayer, it appears in a different aspect—as an embodiment of capital invested to secure important social objects. This aspect has been thoroughly examined in America by Dr. Rufus Rorem, whose results, published in the volume before us,[5] may profitably be studied by all who are concerned with the provision of hospital services. Dr. Rorem obtained particulars of practically all the hospitals in the United States, which number about 7000 and represent an investment of 600 million pounds. There are few manufacturing industries in America with so large a capital. Of this enormous sum, 46 per cent. is represented by hospitals provided by central or local government authorities, 45 per cent. by voluntary "non-profit" hospitals, and 9 per cent. by hospitals established for profit-making. Though the second group most nearly resembles British voluntary hospitals, there are important differences: the American voluntary hospital has far more pay-beds, and the rates payable are fixed beforehand, varying with the quality of accommodation provided. It might be expected that American hospital accounting would aim at relating these rates to costs, and would, for that if for no other purpose, show allowances for depreciation of buildings, plant, and equipment. This however is not so. It is exceptional for a hospital record to make any recognition of the services of capital by allowances for interest and depreciation. There appears to be need for more precise methods of cost analysis and for more uniformity in the keeping of hospital accounts. Without such methods, comparisons of the costs of different hospitals may become dangerously misleading. The capital invested in American hospitals increases by some 40 million pounds a year, chiefly in the extension and improvement of existing institutions. The question naturally arises whether the vast amounts invested are adequately utilised, and it appears that in many hospitals less than two-thirds of the beds are occupied on daily average during the year. This raises the further question whether the hospitals in each of the various areas should not be combined in some unified system of control. For the discussion of these and similar questions useful material will be found in Dr. Rorem's book. It does not, however, specifically discuss a question now agitating medical circles in America—whether the hospitals of the local authorities should be permitted to accept patients without regard to their financial responsibility. The movement in this direction will, it is feared, turn many private medical practitioners into salaried officers of lay authorities, and form a long step towards "State medicine." But in view of the growing need and increasing cost of hospital treatment some changes in hospital economics seem inevitable, and should be considered in the light of the facts so ably marshalled by Dr. Rorem.

HEPARIN TRANSFUSIONS

A NOVEL suggestion for simplifying the technique of blood transfusion is made by Dr. Per Hedenius[1] who utilises the anticoagulant properties of heparin (a liver extract) in preparing the blood donor for the operation. He finds that an intravenous injection of heparin will lengthen the coagulation-time of the blood to 20 minutes or more, so that reasonable time is afforded for the performance of a transfusion in the ordinary way without the addition of any other anticoagulant to the blood, or the use of any special precautions. Hedenius gives details of eleven transfusions carried out in this way. The donor's coagulation-time was usually increased to 20 minutes or considerably more, while the effect on the patient of the small quantity of heparin in the transfused blood was always negligible. The blood is taken from the donor ten minutes after the injection of 150 mg. of heparin, and it is stated that the heparinisation is quite harmless. The method seems to demand further investigation, and if its harmlessness is confirmed it may be of wide application.

INTRAPROSTATIC INJECTIONS

FROM time to time clinicians, discouraged by the tardy results of orthodox methods of treating prostatitis, have attempted new procedures. One of these has been the injection of antiseptics into the substance of the prostate. O. Grant employed 1 per cent. mercurochrome injected directly into the lobes of the prostate through the perineum; he reported an amelioration of symptoms and a rapidity of cure not usually obtained otherwise. F. C. McCarthy prefers injection through a panendoscope of 3–8 per cent. colloidal silver. But on the whole the intraprostatic injection of antiseptics has not appealed to urologists. If injection of antiseptics into cavities has but a limited use, it is scarcely to be expected that infiltration of a solid organ like the prostate will materially benefit the patient, even if it can be assured that no damage is done to the tissues. The experiments of V. J. O'Conor and R. L. Ladd[2] of Chicago reinforce this argument. Removed 7–70 days after infiltration with mercurochrome and *colloidal silver, the prostates* of dogs showed a chronic inflammatory reaction, with scattered areas of necrosis, and complete or partial destruction of the acini. Fibroblastic proliferation was still going on 63 days after injection, and even if eventually the infecting organism disappears, prostates undergoing so intense a reaction are bound to become sclerosed and might well cause obstructive symptoms. Indeed, from these experiments it seems that any good effects credited to intraprostatic injection must be due to fibrotic obliteration of infected acini rather than to localised sterilisation of the injected tissues. After reading O'Conor and Ladd's reports few clinicians will be inclined to take this short-cut to a cure.

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[3] Hurler, G.: Zeits. f. Kinderheilk., 1919, xxiv., 220.

[4] De Lange, C., and Woltring, L.: Acta Pædiat., 1936, xix., 71.

[5] The Public's Investment in Hospitals. By C. Rufus Rorem, Ph.D. Chicago: The University Press. 1936. Pp. 251. $2.50.

[1] Acta med. Scand., 1936, lxxxix., 263.

[2] Jour. Amer. Med. Assoc., Oct. 10th, 1936, p. 1185.

HARLEY STREETS

EVEN a casual glance at the gazetteer of private practice to be found at the end of Knox's Medical Directory for Australia (reviewed in a recent number) reveals the fact that segregation of doctors is even more marked in Australian cities than it is in this country. In the Sydney list for example all except 26 of the 498 names are followed by an address in Macquarie-street, although we may presume they do not all live there. One side of this street, we are told, is almost wholly occupied by the consulting-rooms of doctors and dentists; on the opposite side is a park in which the main hospital stands. Similarly the Harley-street of Melbourne is known as Collins-street; of Brisbane as Wickham-terrace; and of Adelaide as North-terrace. Adelaide is one mile square, and North-terrace is one side of this square opposite a park in which are situated the university buildings and the hospital. Collins-street in Melbourne is in two parts, separated by Spring-street; Collins-street East is occupied largely by doctors and dentists; while Collins-street West, on the other side of the central part of the city, is occupied by banks, insurance offices, and stockbrokers. The segregation of doctors in Australia seems definitely related to nearness to hospitals and all that that implies, whereas in London and Manchester at least the doctors' quarter is not at all conveniently situated for access to hospitals, nor indeed in either case can the quarter have been chosen for its salubrity, as might be the case in Clifton or Edgbaston, for St. John-street is as grubby as any part of the Irwell basin, and the north end of Harley-street was scheduled a few years ago as the foggiest spot in London. Perhaps when the university has begun to feel at home in Bloomsbury the trek of consultants may set east again.

UTERO-TUBAL INSUFFLATION

WHEN first introduced, Rubin's test for patency of the Fallopian tubes was thought to have no value beyond giving help in diagnosis. In 1923, however, Peterson and Cron pointed out that pregnancy sometimes followed the insufflation, and in 1929 Rubin was able to report a further 205 cases in which this had happened. Prof. Gordon King now demonstrates[1] that by adding a revolving drum to the apparatus a permanent record can be kept of the findings at the examination, and that such a record may provide important information. He reproduces tracings characteristic of those obtained with a normal patent Fallopian tube, with a tube that is undergoing muscular spasm, with a tube whose lumen is stenosed, and with a tube that is wholly occluded. The reason for making the investigation is the symptom of sterility, and Prof. King makes no claim that his method brings any greater therapeutic success, though pregnancy occurred within a few months of the insufflation in 11·6 per cent. of 300 cases in which patency was proved. It may be argued that the diagnostic information is equally easily—and more certainly—obtainable by injection of lipiodol or some similar substance; but Prof. King holds that the injection of lipiodol into the Fallopian tubes in cases of apparent sterility is not to be recommended. Rabbiner, Rubin, and others have drawn attention to the frequency with which this procedure is followed by salpingitis and even peritonitis, and Rubin has shown that in the normal Fallopian tube lipiodol produces a foreign-body reaction, so that the walls contain numerous foreign-body giant-cells. Lipiodol, according to King, is to be recommended only where obstruction is known to be present, and where it has to be localised before a decision is reached about the wisdom of an abdominal operation. He points out that insufflation with carbon dioxide, using the kymograph in addition, suffices to prove patency and non-patency and reveal the abnormalities specified above. The insufflation should be performed soon after menstruation has ceased, and it is recommended that no anæsthetic be employed. If it is argued that insufflation without kymography is preferable, since it supplies all the necessary information, and gives similar results as regards subsequent pregnancy, the answer is that the maximum amount of information should be obtained from any examination. Prof. King has undoubtedly shown that the use of the kymograph amplifies the information gained and provides a permanent record.

ETHER CONVULSIONS

SEVERAL additions have lately been made to the now considerable literature of ether convulsions. Some of these give admirable summaries of what is known of this disturbing phenomenon, but unfortunately none of them brings us much nearer an explanation of its origin. Mr. Vaughan Payne,[1] indeed, gives up the attempt to pin down the symptom to any one cause and attributes it to the concurrence of several factors. He is able to show that there are a number of conditions which have been present in most of the recorded cases—namely, youth, sepsis, elevation of temperature, and deep anæsthesia. With regard to the last it is interesting to observe that another writer[2] evidently regards insufficient anæsthesia and the resulting trauma as a cause of convulsions. The explanation that seems to meet with most approval at the moment is that first advanced by Dickson Wright, who attributes the convulsions to heat-stroke. As long ago as 1928 Hadfield said that raised temperature was the only common factor he could detect in all recorded cases, and that most of them had been encountered at a warm period of the year. Nevertheless it does not seem likely that hyperthermia will prove to be the essential causative element. It has been well pointed out how many factors at a modern operation tend to heat conservation, but something more is needed to put heat-stroke in the place of chief cause. We are glad to know that a research is to be undertaken under the auspices of the Anæsthetics Committee of the Medical Research Council which should increase our exact knowledge regarding the temperatures of operating theatres and their inmates, and which may well enable us to value truly the theory that ether convulsions depend mainly on excessive heat. Deficiency of serum calcium has now been put forward[3] as an alternative, and although he admits that his suggestion is supported so far by only two cases Dr. Hoseason has produced a thoughtful contribution to the subject.

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[1] Jour. Obst. and Gyn. Brit. Emp., October, 1936, p. 865.

[1] Payne, R. V.: Guy [illegible] p. 461.
[2] Hudson, R. V.: [illegible] ., 153.
[3] Hosea [illegible]

INFLUENZA: THE RELATION OF ANTIBODIES TO IMMUNITY

In an appeal for fifty first-year St. Bart.'s students to volunteer help in the influenza research being carried on at the National Institute for Medical Research, Hampstead, Dr. C. H. Andrewes sets out succinctly the specific questions to which answers are required.[1] One is, whether the fact that to-day the antibodies to influenza of most Londoners appear to be of very inferior quality, or not detectable at all, means that an influenza epidemic is about to break out this winter. The potency of these antibodies is tested by dropping mixtures of serum from persons to be tested and filtrates of influenza virus into the noses of ferrets or mice; if antibodies are present in the serum the animal fails to develop the disease. Three years ago, says Dr. Andrewes, after a widespread epidemic, nearly all Londoners had antibodies to the virus in their blood; now those tested have only poor ones. Junior students, who will be available for a number of years to come, are being asked to give 5 c.cm. or 10 c.cm. of their blood so that its antibody content may be estimated now and in future years. It is hoped thus to learn whether such bloods will serve as a 'flu barometer—i.e., whether there is any relation between epidemics and the antibody level in a representative section of the community. If, again, there is an epidemic and those students with good antibodies escape while the others fall victims, it will encourage the hope that the increasing of antibodies by vaccination with the killed virus will increase resistance to influenza in humans as it has already been found to do in ferrets and mice. The incidence of influenza among these young volunteers will not be accepted without objective test, since it is fairly certain that several diseases are mixed up together under the name of influenza. They are asked to notify indisposition within 24 hours, when workers from Hampstead will swoop down upon them to collect their saline garglings for testing on ferrets.

This seems to us an excellent plan for testing the significance of the antibody level as regards immunity, and we wish it every success.

INTRACRANIAL INJURIES OF THE NEW-BORN

The general opinion of intracranial injuries of the new-born is that they are always serious and better fatal. But according to R. H. Nattrass[2] the commoner examples are usually unrecognised and thus untreated, so that the child survives subject to the risk of mental and physical impairment. From a study of the causes of intracranial injuries, Nattrass deduces that diagnosis is greatly helped by a detailed knowledge of the labour. The clinical signs and symptoms are neither uniform nor characteristic. Respiration, after being established with some difficulty, becomes slow and irregular. There may be focal or general convulsions, rigidity of the neck, inequality of pupils, and either extreme lethargy or great restlessness. The sucking reflex is often impaired or absent. Nattrass points out that the condition of the anterior fontanelle is often misleading, and he urges the use of lumbar puncture as a relatively easy method of establishing diagnosis as well as affording decompression. In discussing treatment he mentions, however, that the intracranial pressure may also be lowered by rectal injections of 2 oz. of 10 per cent. saline given every 4–8 hours until symptoms subside. Under the same heading, too, he shows that intracranial damage may be aggravated by the various vigorous methods still, unfortunately, being used for resuscitation. A new-born baby that fails to breathe when the mucus from the throat has been adequately removed—a measure followed perhaps by gentle traction of the tongue and the use of a stimulant drug such as Coramine—has probably sustained a brain injury, so that violent manipulative methods will certainly do harm. Warmth is important and the baby must be treated in a darkened room and not put to the breast until all apparent danger is over. Oxygen and carbon dioxide must be available for dealing with cyanotic attacks, and if slowly continuing hæmorrhage is suspected or occurs in association with the lumbar puncture, it is probably useful to inject about 10 c.cm. of maternal blood into the infant's buttocks in the hope of encouraging coagulation.

URETERIC ENURESIS

Incontinence of urine caused by extravesical implantation of the lower end of one or two ureters is a rare condition, but as H. C. E. M. Houtappel[1] points out, is of practical importance, because it can usually be cured. Several different types of the anomaly have been reported. In one group of cases one or both of the normal ureters open extravesically. (The second of these types has so far been reported only as a post-mortem finding in newly born infants.) In another group an extra rudimentary kidney is present and the ureter from this opens outside the bladder; this is the type most often seen and includes the case on which Houtappel bases his paper. In a third group, of which only two post-mortem examples have been recorded, one of the normal kidneys is absent and its place is taken by a pair of rudimentary organs with ectopically opening ureters. In a fourth group an extra rudimentary kidney is present on each side and one or both of the extra ureters open extravesically. Lastly, one case has been described in which one kidney was replaced by a rudimentary kidney situated in the pelvis close to the bladder and with a ureter opening extravesically.

In Houtappel's case the patient, a single woman aged 24, had suffered all her life from dribbling of urine, which was constant and not influenced by coughing or laughing. Normal micturition occurred. Cystoscopy showed two normal ureteric orifices. On inspection of the vulva, urine was seen to exude slowly from the urethra. The bladder was filled up through a catheter with sterile milk and it was then observed that the drops emerging from the urethra remained clear and did not become milky in appearance, which showed that the fluid did not come from the bladder. Several abortive attempts were made to pass an opaque ureteric catheter into the abnormal ureter and at last a false passage was made into the vagina. This accident proved to be a fortunate one. It was followed by cessation of the extravesical oozing of urine and later by pain in the left loin, thus giving a clue to the position of the abnormal kidney. Operation was carried out and disclosed a miniature extra kidney lying at the upper pole of the normal organ. The extra kidney was removed after ligaturing its ureter. It was bean-shaped, 2·3 cm. long, and microscopically showed normal renal tissue.

Emphasising the importance of exact anatomical diagnosis Houtappel points out that this is much easier in the female than in the male. The nature of the operation will depend upon the condition found; various alternatives are open to the surgeon, including nephrectomy, ligature of the abnormal ureter, and implantation of the ectopic ureter into the bladder. Ureteric enuresis is a possibility to be borne in mind in obscure cases of urinary incontinence.

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[1] St. Bartholomew's Hospital Journal, November, 1936, p. 26.

[2] Med. Jour. of Australia, Sept. 5th, 1936, p. 326.

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[1] Nederl. tijdschr. v. geneesk., 1936, lxxx., 4692.

PROGNOSIS

A Series of Signed Articles contributed by invitation

CXXI.—PROGNOSIS IN BREECH PRESENTATION

PROGNOSIS in breech presentation involves three distinct considerations: (1) the fœtus, (2) the mother, (3) the mother and fœtus when prophylactic external version is carried out.

Prognosis for the Fœtus

Some years ago Mr. G. F. Gibberd (Brit. Med. Jour., 1931, ii., 369) drew attention to a disquieting fact. He analysed the statistics of eight teaching hospitals, four in London and four in the provinces, and showed that the fœtal mortality recorded in breech deliveries was greatly in excess of the figure usually associated with that mode of delivery. When neonatal deaths were added to the stillbirths, no less than 32 per cent. of the fœtuses were found to have died in the "uncomplicated cases," while in the "complicated cases" the mortality-rate reached the astonishing figure of 52 per cent.

Gibberd pointed out that the danger of breech delivery to the fœtus has been considerably obscured by the custom of classifying the primigravid case and cases associated with extension of arms or legs as "complicated breeches." These circumstances are the inevitable accompaniment of a considerable proportion of breech deliveries and cannot be used as an excuse for the birth of a dead child. The term "complicated breech" ought to be restricted to cases in which a second distinct obstetrical abnormality is present, such as, for example, placenta prævia or hydrocephalus. When this was done, Gibberd found that the mortality in one of the teaching hospitals, whose results had already been analysed, was as shown in Table I.

TABLE I

Gross Fœtal and Neonatal Death-rates in Breech Delivery

—	Total number of cases.		Stillbirths per cent.		Neonatal deaths per cent.	
	Pr.	Mul.	Pr.	Mul.	Pr.	Mul.
"Uncomplicated" breech	48	161	28	20	2	2
"Complicated" breech	7	43	57	56	14	2
Twins	3	76	33	9	Nil.	3

After Gibberd. Pr. = primiparæ; Mul. = multiparæ.

By further analysing his figures, and by eliminating from the above Table cases in which the fœtus had died *before* delivery and disregarding neonatal deaths which in some cases may have been due to prematurity, he found that the *minimum* fœtal risk associated with mechanical difficulties of breech delivery was as given in Table II.

TABLE II

Percentage of Stillbirths (Fœtus Fresh) in Breech Delivery

—	Primiparæ.	Multiparæ.
"Uncomplicated" breech ..	28	15
"Complicated" ,, ..	57	49
Twins	33	9

After Gibberd.

It should be realised that the figures in this Table err by being over-corrected, and the real difficulty of breech delivery is probably slightly minimised. To many it will appear that this mortality-rate is still deplorably high, but figures are stubborn things, and statistics are as we find them and not as we would like them to be. Most of us would admit that the conduct of a "simple" breech case is, on occasion, a humiliating obstetrical experience.

Breech delivery does not, however, necessarily carry with it so grave a danger to the fœtus as has been indicated. Individual workers may be able to produce records to show that in their hands the fœtal mortality—although still high, and exceeding by some margin the 6 or 8 per cent. associated with forceps delivery—is yet considerably lower than the figure already mentioned. This fact deserves to be emphasised, for it means that the personal experience of the obstetrician is the most important single factor in determining the safety or otherwise of a breech delivery. It can only be supposed that the less good results already mentioned are due in the main to the relative inexperience of the junior officers who deliver cases in teaching hospitals. Yet these officers, although junior in rank, are by no means completely lacking in practical experience. They are, moreover, men who by the fact of their candidature for the post have shown that they are keen on midwifery, and presumably better versed in the theoretical side of the work than the average graduate who passes into general practice. Again, these men are able to deal with their cases in ideal surroundings, with the help of an anæsthetist, with experienced nurses at hand, and with all the resources of a modern hospital at their call. In spite of these advantages, breech delivery is such a serious matter for the fœtus that even in uncomplicated cases, more than one life is lost in every four in the primiparous group, and more than one life in every seven in the multiparous group.

It is difficult to get comparable statistics for domiciliary midwifery as carried out in general practice, but probably the results are not substantially different from those quoted. The good results obtained by the experienced few are offset by the poorer results of the relatively inexperienced majority. This will be better realised if it is remembered that breech delivery accounts for only 3 per cent. of all deliveries, and that a practitioner attending, say, 40 confinements a year, would require to be in practice for 15 years before he could have experience of even 20 cases.

It is interesting to compare the fœtal mortality-rate of breech with vertex delivery. A study of the annual reports of one of the institutions already mentioned shows that the gross fœtal mortality-rate in vertex delivery is below 5 per cent., this figure including neonatal deaths. In the same institution, the fœtal mortality in breech delivery, even when cases are excluded in which death was due to complicating conditions, is around 20 per cent. It can therefore be said that a fœtus which presents and is delivered by the breech is subjected to a risk of death which at a conservative estimate is at least four times that of vertex delivery. If primiparous cases alone are considered, or if "complicated" cases are included, the risk is considerably greater.

ANTENATAL EXAMINATION

Before discussing in detail the obstetrical difficulties peculiar to breech delivery, it may be well to point out that if in the last four weeks of pregnancy a fœtus is found to present by the breech, this fact alone indicates a strong possibility of an underlying maternal or fœtal abnormality. Among the various possibilities the following may be specially mentioned: multiple pregnancy, contracted pelvis, placenta prævia, hydrocephalus, and fœtal monstrosity. It is thus obvious that when dealing with uncorrected statistics the high incidence of obstetrical abnormalities in the one group inevitably loads the risk to both mother and the fœtus. In particular, the frequent coincidence of slight degrees of disproportion between the pelvis and fœtal head must be emphasised, for this makes safe delivery an extremely difficult matter. The most difficult of all breech deliveries are those in which the obstetrician unwittingly finds himself committed to the delivery of a shoulder-girdle and after-coming head which are relatively over-large for the pelvis through which they have to pass. While the fore-coming head may, in similar circumstances, be gradually moulded by the uterine forces and the minor degrees of disproportion thus safely overcome, the after-coming head is deprived of this advantage and can only be delivered by violent compression and with consequent intracranial damage. Nor can the obstetrician intelligently assess beforehand the degree of disproportion or forecast the obstetrical difficulties, for he is denied the opportunity of gauging the head directly against the pelvic brim. Barbour's dictum, "the fœtal head is the best pelvimeter," well and truly applies to the vertex case, but is meaningless when applied to a case in which the fœtus presents by the breech. The newer work on X ray cephalometry and pelvimetry, while giving some aid, has not yet materially altered the situation.

Notwithstanding the special difficulties just mentioned, one can still say with confidence that the prognosis in breech presentation is considerably influenced by competent antenatal examination. This examination, while not always successful in distinguishing the difficult case, will often show the presence of a coincident obstetrical abnormality. Forewarned is forearmed, and by appropriate measures many of these dangers may be avoided.

CAUSE OF FŒTAL DEATH

It was formerly believed that the usual cause of fœtal death in breech delivery was asphyxia produced by pressure on the umbilical cord during the delivery of the shoulders and the after-coming head. In consequence, it was generally taught that, to secure a live baby, the after-coming head had to be extracted as speedily as possible, and certainly within five minutes of the appearance of the umbilicus at the vulva. It is now known that this teaching is largely erroneous. Researches carried out by Eardley Holland, F. J. Browne, and others have shown that the most frequent single cause of death in breech delivery is intracranial hæmorrhage due to tentorial tear; these tears are the result of sudden excessive pressure on the after-coming head, and may be aptly described as the snapping of the internal "guy-ropes" of the cranium. Asphyxia, although still an important cause of death, is much less frequent than was previously supposed. Rupture of, or hæmorrhage into, the abdominal organs (caused by rough handling), or hæmorrhage round the spinal medulla (caused by undue traction in the trunk) are rarer causes of death.

Realisation of these facts has profoundly altered the teaching regarding the technique of breech delivery. Stress is no longer put on *speed*, but rather on gentleness and deliberation, especially during the delivery of the after-coming head.

It is surprising how long a newly born infant will live without a supply of oxygen. The apnœic baby seen after morphine-hyoscine narcosis may not breathe for ten minutes or more, and yet recover completely. Another example of resistance to anoxæmia is the successful delivery of a living fœtus by post-mortem Cæsarean section. In one instance known to me an operation performed at least 15 minutes after the mother's death resulted in the delivery of a healthy baby. Thus the anoxæmia suffered by the fœtus during breech delivery is seldom of sufficient duration to give rise to real anxiety. For similar reasons, needless anxiety is caused by attempts to feel and to count the pulsations of the fœtal cord. The pulsations are always slow, but the sudden realisation of this fact may unnecessarily disturb the attendant and may cause him to abandon his methodical step-by-step assistance of the delivery and tempt him to indulge in powerful traction and in brutal suprapubic pressure. In this connexion it is interesting to find that I. W. Potter, of Buffalo, who is famous in the obstetrical world as the man who delivers *every* fœtus by the breech (excluding the considerable proportion he delivers by Cæsarean section), takes what appears to onlookers to be an almost perverse delight in protracting the delivery of the after-coming head. Yet in his hands—and he has experience of nearly 20,000 cases—a stillborn baby is an extremely rare occurrence.

TECHNIQUE OF DELIVERY

Several points in the technique of breech delivery have an important bearing on prognosis.

(*a*) *Stage of Dilatation.*—The ease or otherwise of the critical stage of a breech delivery—namely, the delivery of the arms and after-coming head—is in a large measure determined by the degree of dilatation of the birth canal. Maximum dilatation is brought about by allowing ample time for the breech, with folded or extended legs, to dilate the cervix, vagina, and pelvic floor. This means a protracted labour, but it is better to follow the "hands-off-the-breech" rule than to attempt to hurry matters by pulling one or both legs down to the vulva at an early stage of dilatation. It is true that in a few cases extended legs may cause impaction, but this complication can be dealt with if and when it arises, and the possibility of its recurrence should not be used as an argument for routine interference.

(*b*) *The After-coming Head.*—Most obstetricians have a preference for the Mauriceau, or, as it is also called, the Smellie-Veit method of delivering the after-coming head. It should be realised, however, that in many cases it is necessary to allow the head to descend well through the brim in the *transverse* diameter before attempting to bring the occiput to the front. The head should then be manœuvred with traction directed well downwards (the patient being in the lithotomy position) until the base of the occiput coincides with the lower margin of the symphysis pubis. Col. A. Buchanan, in his booklet on "Midwifery Mechanics," aptly describes this as bringing the "pivot-points" together. It is an essential preliminary to extraction, and enables the head to be revolved on its fulcrum out of the pelvis. Recently, the Liverpool school has advocated allowing the fœtus to *hang* for a minute or two after the arms have been delivered. This is merely another method of attaining the same preliminary essential of bringing the "pivot-points" together. When difficulty is experienced with the extraction of the head, and it is felt that considerable force must be used, the application of forceps is of considerable help, and will on occasion save a fœtal life.

(c) *Episiotomy.*—The advantage of making a generous episiotomy in every primiparous breech case cannot be stressed too strongly. The incision is best made when the perineum is beginning to distend, and can with advantage be preceded by a manual dilatation of the vaginal introitus and pelvic floor. Such an episiotomy greatly facilitates the passage of the arms and the after-coming head, and allows delivery to be accomplished with less mechanical stress to the fœtus and with less risk of asphyxia due to prolonged manœuvring. There is little doubt that were this practice made a routine in every primiparous case (excepting, of course, cases in which the fœtus is obviously less than normal size), there would be an appreciable saving of fœtal and neonatal life. There are also good reasons why an episiotomy should be made for the mother's sake: these will be dealt with later.

NON-FATAL FŒTAL INJURIES

Apart from the injuries mentioned, there are other risks to which the fœtus is subjected by breech delivery.

Fracture of the humerus is a not uncommon injury, and is the result of levering down an extended arm instead of pushing it down by pressure on the elbow. To reach the elbow it is necessary to pass the fingers high in the vagina; then, by gentle manipulation and by slight rotation of the fœtal trunk, it is usually possible, although not always easy, to sweep the arm down alongside the fœtal face. A fractured humerus is best treated by extension on a miniature Thomas's splint. Simple strapping to the chest wall will, however, usually give quite good results.

Fracture of the femur is a rarer form of injury which is caused by faulty methods of pulling down an extended leg—an operation not very often necessary, and one which should only be done under full surgical anæsthesia, and with the breech dislodged out of the pelvic cavity as an essential preliminary step. Treatment is more difficult than in the case of the fractured humerus, but strapping the leg in the extended position to the trunk for ten days gives results at least as good as other more elaborate methods of treatment. In both varieties of fracture it is remarkable how deformity is effaced by the lapse of time. This is a comforting thought, for often the immediate result is far from gratifying.

Separation of the epiphysis of the long bones is probably a fairly common injury; X ray examination may b [illegible] osis, and treatment is on the lines [illegible] for fractured limbs. *Erb's palsy* is occasionally simulated by an injury of the humerus or shoulder-joint. True Erb's palsy (caused by over-strong neck traction) has a grave prognosis. The wrist-drop should be corrected by a light support. Occasionally the paralysis is the result of bruising and will clear up in a week or two, but, if this does not happen, the likelihood of the disability being permanent is very great.

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(To be concluded)

SPECIAL ARTICLES

THE REGISTRAR-GENERAL'S REVIEW

UNHEEDED STUDIES OF VITAL STATISTICS

SINCE 1921 the Statistical Review of the Registrar-General of England and Wales has been issued in three sections. Part I. is composed of the medical tables for the year in question and gives in great detail the basic data derived from the certificates of death—the registered causes of death with their local, age, and seasonal distribution—together with information on other vital statistical indices such as stillbirths, cases of notifiable diseases, and the estimated populations of the administrative areas of the country. Part II. comprises the civil tables dealing with such matters as the marriage- and birth-rates from various aspects, migration to and from the country, and statistics of parliamentary and local government electors throughout the country. Finally comes the Text in which a considerable analysis is made of the material in Parts I. and II.

The procedure has very obvious advantages. It enables members of the public interested in one aspect of our vital statistics to buy a single section dealing with what concerns them rather than a volume containing much material that they do not want. Secondly the data to be tabulated are very extensive and the present format allows them to be issued with the least possible delay—the medical tables for 1935 have been issued this week.[1] If the text were to accompany the tables delay would be inevitable with disadvantages to workers in medical statistics. There seems to be only one drawback, though this is much more apparent than real. The analysis of the data to be included in the text naturally takes much time, especially as the Registrar-General wisely takes the view that the text is the proper place for what may be called long-term studies, or reviews of the national statistics, and special studies of selected vital statistical problems. It is clearly an advantage that the statisticians most closely concerned with the collection and tabulation of the original material should be afforded that opportunity of working upon it. But it has the result that when the text is issued—that relating to 1934 [2] has also been published this week—it appears to be out of date and to the uninitiated perhaps not worthy of notice. That is a mistaken view. It is true that the text contains a number of very useful standardised tables of death-rates which we should all desire to have as early as possible (mainly to save having to make the calculations ourselves from the previously published medical tables), but it also contains, as pointed out above, statistical studies of permanent value which cannot be hastened, and the importance of which, indeed, is not affected at all by the date of publication. For instance in the present text volume a comparison is made between the mortality in the county boroughs and the administrative counties in 1931–34, and that experienced twenty years earlier, in 1911–14. In 1911–14 the standardised mortality in the 83 towns now classed as county boroughs ranged from 74 to 150 per cent. of the national mortality. By 1921–24 the range had contracted to 83–140, by 1931–34 still further to 87–137.

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[1] The Registrar-General's Statistical Review of England and W[illegible] Annual Series No. 15.) Tables. P[illegible] Office. 1936. 6s.

[2] The Registrar-General's Statistical Review of England and Wales for the year 1934. Text. H.M. Stationery Office, 3s. 6d.

This narrowing of the range must, it is suggested, be attributed in the main to the effects of public hygiene and amelioration of the conditions of life in the towns where mortality was worst in the pre-war years. Fifty-four towns had then rates of 14 per 1000 or more and only one gave a rate below 10; in 1931–34 not one had an average rate as high as 14 and more than one-third of them gave rates below 10. One result of this favourable course of mortality in the large towns is to be seen in the diminishing, though still large, contrast between town and county.

The scale of the difference may be illustrated from the 1935 tables. In that year the mortality (standardised) in the county boroughs was 13 per cent. above the national rate, of the rural districts 9 per cent. below. The unenviable distinction of having the highest death-rate of the year appears to have been shared in the large areas between the county boroughs of Oldham, Wigan, and Merthyr Tydfil, with rates some 40 per cent. above the national rate.

In the country as a whole the death-rates in 1935, of both sexes combined, are lower than any previously registered at all ages and in every age-group up to 75 years, while the infant mortality-rate of 57 deaths per 1000 live births is also a new record. Tuberculosis mortality continues to decline and respiratory mortality in general was low. The year was an extremely favourable one for certain of the epidemic diseases, notably measles and whooping-cough. Scarlet fever after its rise in 1933–34 fell back to its previous level, but mortality from diphtheria remained relatively high.

A comparison, in the text volume for 1934, of mortality at various ages in England and Wales and a number of other countries shows, however, that though we well may congratulate ourselves on the trend of the various death-rates there is ample scope for further improvement. At ages 1–4 the Norwegian rates are in recent years less than half those of this country and the Swedish rates are little more than half. These facts go to support the conclusion reached from recent studies of the association between mortality at this age and overcrowding, that reduction of the mortality of young children is still possible through the mitigation of environmental evils. Within our own borders the infant mortality-rate varied in 1935 between over 80, or even 90, per 1000 live births in the worst of the county boroughs and under 40 in the rural districts of some of the southern counties. The much lower mortality levels at ages 65–74 in the Scandinavian countries also throw doubts on the prevalent belief that little or no improvement in death-rates at ages over 65 can be hoped for. Even if the comparison be limited to our rural districts Norway and Sweden still hold a considerable advantage at these older ages.

One of the serious causes of mortality at such ages is, of course, cancer, and twenty-three pages of the text are devoted to considering the 63,263 deaths ascribed to it in 1934 and to comparisons of the present incidence with the past. In particular the deaths from cancer of various sites at different ages in 1933–34 are compared with the numbers expected had the mean rates during 1911–20 been operative. There is some evidence of delayed mortality in recent years, notably of the tongue, mouth, and œsophagus in males and of the stomach and rectum in females, and for rodent ulcer in each sex. The mean age at death from cancer as a whole has increased since 1911–20 by one year in excess of that which can be accounted for by the increasing average age of the population, but for certain organs, such as the tongue, it has advanced by as much as 4 years. With some sites it is probable that those affected are living longer, through earlier resort to treatment or more efficient treatment, in sufficient numbers to influence the national statistics; in other sites changes in diagnosis or certification especially at the most advanced ages may well play a part. The standardised death-rates of 1935 show a small increase over recent years for males and a small decrease for females.

The 1934 report contains a short but interesting study of maternal mortality according to the social class of the husband. The mortality per 1000 live births is shown to decline from 4·44 in the professional group to 4·11 in the skilled-workman class, 4·16 in the semi-skilled, and 3·89 in the unskilled. Puerperal sepsis risks diminish progressively in passing down the scale but puerperal hæmorrhage risks increase. The rate for puerperal albuminuria, convulsions, and other toxæmias is lowest for the unskilled class. It must, of course, be remembered that the mortality risk from at least some causes is higher at a first pregnancy than at later pregnancies, or may be otherwise influenced by the number of previous confinements, and the average size of family is not the same for married women in the different social classes. In a class where a higher proportion of the confinements are first pregnancies, the average mortality risk may be greater on that account, and the excess of mortality-rate in the professional classes may arise partly from that cause. The number of factors involved makes it difficult to get a clear-cut comparison, a point which must be remembered when differences in such things as nutrition or medical care are being implicated.

These special studies of the national statistics were, of course, initiated by William Farr, the first medical officer to the Registrar-General, and have been carried on by his successors to the present day. In considering some cause of death as a suitable subject for investigation, or some aspect of our vital statistics, the first reaction of the medical statistician is to "see what the R.G. has said about it." It would be well if all workers who are seized with a desire to use mortality statistics, or who have them reluctantly thrust upon them, would acquire that habit. Because these studies appear in a "blue book" they are not one whit less important than if they had had the wider publicity of a scientific journal; they are more likely to be overlooked, and, at the moment, perhaps, to be overshadowed by the more recent national statistics issued alongside them.

MEDICINE AND THE LAW

"Klieg-eye" in Film Work[1]

THE action brought by Miss Peggy Crawford (Mrs. Florence Russell) against Criterion Film Productions Ltd. has shown that, in the opinion of the judge who tried the case, the performers in film studios are unaware of the effect of the bright lighting upon the eyes. The plaintiff complained that the use of lighting of supranormal power and intensity in the photography of a ball-room scene caused her to become temporarily blind, impaired her eyesight, and injured her shoulders. The judge thought she exaggerated her sufferings but he substantially believed her story and awarded her £126 19*s.* damages. It was said to be the first case of its kind and part of the evidence was devoted to the effect of the ultra-violet and infra-red rays employed by the photographers. The defendants pleaded that the lighting was normal and no more dangerous than the usual lighting used in film studios. Alternatively they relied on the maxim *volenti non fit injuria*, contending that the film actress knew of the risk (if any) and voluntarily undertook it. There was a further plea of contributory negligence and a suggestion that she could have left the scene when she felt pain in her eyes. Lastly they put the blame on their photographer and said he was not their servant or agent but an independent party responsible for his own skill or negligence. Miss Crawford replied by suing the photographer as well. She said also that if there was a risk of the condition described as "Klieg-eye," she was not aware of it when she signed her contract to perform in the film. The defendants then rejoined that she and the photographer were legally fellow-servants and that her claim was therefore barred by the English common-law doctrine of common employment. These legal skirmishings explain how the judge came to consider the extent of the knowledge of the risk to performers' eyesight. Two witnesses called by the film company said that no injury to eyesight was possible since the ultra-violet rays could not penetrate the glass screens placed in front of the lamps. The court found that injury had in fact been caused to the plaintiff and to others. Expert knowledge of the method by which ultra-violet or infra-red rays affected the eyes was, in the judge's opinion, not widely spread. A third witness called by the defendants disagreed with the earlier contentions of the defence. Glass, he said, whether placed at the back or at the front of an arc-lamp, would not shut out by any means all the ultra-violet or infra-red rays. Accepting this frank opinion, the judge held that the plaintiff was injured by burning from these rays, that the burning was due to the ordinary effect of extremely powerful lighting such as was used from time to time in ball-room scenes, that the direct physical effect lasted for a month, and that the plaintiff was justified in avoiding the bright light of film work till the end of the year from fear of recurrence. The court said the lighting was not supranormal but it was of an intensity not often used. The film company knew its dangers and its possible effect on the eyes. They wanted to make a good picture and they were prepared to risk the performers' eyes in getting that result. Some of the plaintiff's witnesses knew the risk and had suffered from the rays. It was the defendants' case that "Klieg-eye" was a well-known risk. The judge thought that "crowd" performers were unaware of it and that the plaintiff herself did not know of it, the result being that for about a week she genuinely feared she was going blind.

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[1] The name "Klieg-eye" is derived from Kliegal, the name of a manufacturer of powerful electric lamps.

A Non-existent Risk of Practice

A continental contemporary (Münch. med. Woch., Nov. 6th) mentions an occasion when an English doctor was accused by the family of one his patients of having incited him to suicide. The patient suffered from cancer and the doctor thought he should leave him in no doubt that he regarded his condition as hopeless. The patient then shot himself for fear of worse pain to come. The court acquitted the doctor on the grounds that he had not only the right but the duty of candour to his patient and no one could be reproached if the patient took refuge from pain in suicide. This was proved by a letter of thanks left by the patient for the doctor.

The reference is a little puzzling. A man may certainly be indicted in an English court for the offence of inciting to suicide; but, if the sole incitement were the perfectly lawful action of telling the patient the truth, it is doubtful whether the prosecution would ever get as far as commitment by the investigating magistrates. It may be that the report refers to cross-examination or comment in the coroner's court where all things are possible. To frighten a person to death (by assault or otherwise) is said to be manslaughter at least. If A, under a reasonable apprehension of personal violence, jumps out of a window or into a river, the threatener of violence is criminally liable. Unless, however, the act be wrongful in its origin, there will be no criminal responsibility for the consequences. In the field of civil liability, too, physical shock may give rise to a claim for damages. There is a well-known decision in a case where a mother died from shock at seeing a motor accident which threatened her child. This introduces a train of forensic speculation as to whether the consequences of an act are legally too remote to justify a successful claim for damages or whether they are such as a reasonable man might have been expected to foresee. If the defendant has been at fault, he cannot claim that the mother's feelings were too easily roused. It is no answer to a claim for damages for negligence to say that the injured person would have suffered less injury or no injury at all if he had not had an unusually thin skull or an unusually weak heart.

So, too, if a doctor were to cause a patient shock by a too abrupt statement about his health, it might be no answer to say that the patient was unduly sensitive. But this situation can hardly create civil or criminal liability for the doctor, since there is nothing unlawful in what he is doing. The mother, in the case already mentioned, has no legal claim unless the motorist has been negligent or has infringed some legal duty not to inflict physical shock. The doctor, in telling a patient the truth about his health, is lawfully doing that which the patient requires of him; a failure of tact will not make the lawful act unlawful. Doctors may sometimes be anxious over the effect of the truth upon the patient; but they need not worry about a possible charge of incitement to suicide.

MEMORIAL TO SIR WALTER FLETCHER

The library at the National Institute for Medical Research was crowded on Wednesday afternoon, Nov. 11th, when the portrait-bust of Sir Walter Morley Fletcher was officially presented to the care of the institute.

Lord Balfour of Burleigh, the new chairman of the Medical Research Council, said that it was a high privilege to preside over a gathering of friends of Walter Fletcher, and it was a special pleasure that this should be almost the first duty which had fallen to him in his new office. All Fletcher's friends would remember the enthusiasm with which he would talk of his work as secretary of the Council: he was able to make his "shop" interesting even to the layman. He thought that the date for their gathering, the great national day of remembrance, had been well chosen, and that here was the right place for a memorial to the man who had done so much to make the work of the Medical Research Council a force in the land.

Prof. G. M. TREVELYAN, regius professor of modern history at Cambridge, said that Miss Dora Clarke's sculptured portrait of their friend recalled his features in a very exact and vivid manner, it was a true portrait.[1] They were met to record their gratitude for what Walter Fletcher did, and their affectionate remembrance for what he was. His place could never be filled because he was not made according to any pattern; he had set his individual mark on the life and memory of all of them. The more general mark he had made on the world at large was made as the guiding spirit of the Medical Research Committee (later Council) during its formative period. He was peculiarly fitted to be a liaison officer between a great branch of the scientific world and the world of politics and administration. He was heart and soul a man of science and a Cambridge man. But he was more. His love of life on all sides, æsthetic, artistic, literary, social, his deep interest in the public welfare, and his great desire to make science subservient to it—these gave him a largeness of mind and heart that is not specially a Cambridge trait but is a gift of God. An American phrase describing workers of a certain class runs, "they sit still and saw wood but do not always look outside the woodshed." Walter Fletcher sawed wood, but his own affections were always out of doors. To the end of his life his eager ranging mind was out of doors and circling the empire and the world, and in whatever company he was, he counted. He always spoke his mind, and it was his merit and sometimes his difficulty that he combined the puritan and cavalier ideal. He never ceased to say: "That is right!," "That is wrong!," but was always faithful to the rock from which he was hewn. He was impatient of people who missed opportunities of enjoying the best that was to be seen, read, done, and heard. Life was for him both a high calling of duty and service and a joyful opportunity with the most varied forms of experience and happiness. Everywhere he wanted to bring accurate information to bear, and he could talk about prints and even wines with a wealth of knowledge. He was an antiquarian whose favourite sport was deer-stalking, and the passage of years found him in training to the end. Fletcher believed in a free and popular form of government, but he knew the want of reverence for scientific knowledge as a guide to public action which besets our English democracy, and rejoiced therefore when the Government consented to endow research through the original Medical Research Committee. Nevertheless he was most anxious to prevent the Medical Research Council in its present form from becoming a mere department of State. Its spirit was to be scientific, and it was to keep the Government of the country in constant touch with scientific minds.

Sir GOWLAND HOPKINS, past president of the Royal Society, said that in Walter Fletcher the man and his work could never be kept very far apart. In 1898 he had been greatly impressed by a paper written by Fletcher, and had looked forward to meeting its author who was at Cambridge, and held a research scholarship at Trinity. Earlier work had already proved him to be an able experimentalist, but the later work, in which Fletcher's own innate gifts came to life, was on a different plane, and showed originality of conception, skilful use of technique; it illuminated fundamentals in biology. In 1900 Fletcher became lecturer in natural science at Trinity, and he had frequent opportunities for meeting him, and soon felt the spell of his exceptional personality. In 1907 he had joined him in research following up certain suggestions already contained in his first paper, and the results of the conjoint work, he ventured to say, strengthened faith in the value of chemical studies as applied to tissue dynamics and encouraged further work in that field. In 1913 appeared a paper by Fletcher himself, on acid production in mammalian muscle, which showed that if Fletcher's subsequent career had been that of an experimental investigator he would have reached eminence; but he doubted whether such a career would have given him complete satisfaction, and in the year of the last publication fate was preparing for him an opportunity for services to science, which, though indirect, were greater than those that any individual investigator could hope to render. As a new departure in legislation a research fund was created under the National Insurance Act, and Fletcher entered on the duties of administrative secretary. That the right man had been chosen at once became clear. The rapidity with which he grasped the whole situation was remarkable, and then, when for the first time this country began to play a proper part in the advancement of medicine by scientific research, the new body had to face the difficulties caused by the war. Fletcher saw to it that every acquisition in knowledge made possible by the exceptional circumstances of the war should be made available for immediate use and recorded for the future, and the issue of those technical reports which formed part of his scheme for the committee were of both immediate and permanent value, and were prized in medical circles everywhere. There was a remarkable advance in medical knowledge during the war, advances to which the Medical Research Committee contributed much; it emerged from the war with its reputation established and its future secure, and Walter Fletcher's war service was second to none. He served the Committee and Council for nearly twenty strenuous years, and no one who ever sat on the Council would ever under-estimate the weight of his influence or doubt the wisdom of his policies. Very near his heart were the interests of the National Research Institute in which they were assembled. He felt great pride in the highly important gains to knowledge which had arisen from the devoted labours of its staff. To catalogue the successes of a career seemed easy; to account for them was sometimes more difficult. Circumstances may count for as much as the man, sometimes more; but in the case of Walter Fletcher circumstances gave him a great opportunity, but his rich successes were surely due to qualities innate in the man himself, not only to those qualities with which he had dealt—investigator, administrator, or devotee to duty—but to those human qualities which Prof. Trevelyan had recalled so vividly.

Lord BALFOUR asked Sir Henry Dale, the director of the institute, to accept the custody of the bust.

Sir HENRY DALE said he was proud to accept the care of the bust from the donors on behalf of his colleagues and all who worked in the Institute. They could never forget what they owed to Walter Fletcher, and his generous pride in their work.

WESTMINSTER HOSPITAL.—An anonymous gift of £14,000 has been received through Sir George Tilley towards the fund for rebuilding the medical school of this hospital.

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[1] A photograph of the portrait-bust was given in our annotation columns last week.

IRELAND

(FROM OUR OWN CORRESPONDENT)

A BED BUREAU FOR DUBLIN HOSPITALS

In the report of the Hospitals Commission published about a year ago attention was drawn to the lack of coöperation between the Irish hospitals. In particular it was remarked that "better arrangements are required for ensuring that patients seeking admission to a hospital can be referred to some other hospital when accommodation is not available." Speaking on Nov. 14th at a public meeting in aid of the welfare department of the St. John Ambulance Brigade, Sir John Lumsden stated that the difficulty of obtaining admission for patients to the Dublin hospitals could be put right by arrangement with the hospitals. He said that it was proposed to have a bureau as a result of collaboration between the hospitals, and beds could be got by application to that bureau. It is understood that several of the general hospitals in Dublin have expressed their willingness to join in establishing a bed bureau which would arrange for the speedy admission of patients to available beds. A scheme has, it is stated, been submitted to the Minister for Local Government and Public Health for the constitution and control of such a bureau, and it is at present receiving consideration. There have been many complaints in the press and elsewhere of the delays and difficulties in obtaining admission to hospital even in cases of urgency. This is mainly due to an actual shortage of hospital beds, and this shortage must be corrected or the inconveniences will not only continue but increase, for the population of Dublin is growing rapidly. But much time and trouble could be saved if there were a central office which, by keeping in constant touch with the several hospitals, would know where beds were available, and could therefore arrange for rapid admission. Such a bureau could perform its functions without interfering with the autonomy of any institution or with the normal procedure of admission followed in any institution. The expense of maintenance would not be large and would be fully justified by the services performed.

PROGRESS OF GASTRIC SURGERY

Mr. J. H. Coolican, the incoming president of the Biological Society of the Royal College of Physicians and the Royal College of Surgeons, chose the Progress of Gastric Surgery as the subject of his inaugural address on Nov. 14th. He gave a lucid and well-arranged account of the development of surgery of the stomach from the time of Billroth to the present. He showed not only the different views taken toward particular operative procedures at different times but the varying circumstances which had been causes of the varying views. Other aspects of the question were discussed by Dr. L. Abrahamson, Mr. W. Doolin, Mr. James Owens, and Mr. F. G. Stewart.

INFANT WELFARE IN DUBLIN

Speaking in Dublin on Nov. 14th Dr. Kerry Reddin, medical officer in charge of infant welfare, referred to the rapid advances made in the scope of infant welfare work in recent years in Dublin. He said that ten years ago there were only 400 mothers receiving prenatal care, whereas last year there were 5000. As the total number of the births in the year was 10,000, it meant that 50 per cent. of the mothers were getting prenatal care; he hoped that next year they would be treating 80 per cent. To get efficient work they must back voluntary work by official support.

BUCKSTON BROWNE DINNER

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Sir CUTHBERT WALLACE presided on Nov. 12th at the ninth dinner of fellows and members of the College made possible by the generosity of Sir Buckston Browne. He was supported on his right by Sir Alexander MacCormick and on his left by Sir Arthur MacNalty. Sir Cuthbert opened his brief remarks with a feeling allusion to the death of Lord Moynihan who had for many years presided at this banquet. He recalled the appeal he made last year for specimens' to complete the museum, adding that the generous response might be seen after dinner in room No. 1. It had, he said, been an outstanding year for research, and the College was taking its place as a centre of surgical research, attracting workers from all the major dominions, the U.S.A., and European countries. Plans for laboratory development had been drawn up in faith when the allocation of £25,000 by the Bernhard Baron trustees gave the College the chance of making the centre what they wanted it to be. In the meantime offers of bench room had been received from the Medical Research Institute, St. Bartholomew's Hospital, and the London School of Economics. Sir Cuthbert closed with a warm word of thanks to the scientific and administrative staff. "This College," he said, "is uncommonly well served."

Sir BUCKSTON BROWNE said it took some courage to rise after the kind things which had been said about him, but he was consoled by one attribute of old age—namely, that he had no enemies; and in this connexion he recalled the South American president who on his death-bed was being exhorted by his father confessor to ask forgiveness from his enemies; "I have not a single enemy," he answered, and, when further pressed, added "I have shot them all." Sir Buckston said he had not realised his youthful ambition, for he had longed to be a hospital surgeon; but he had failed to pass the final fellowship examination. He was, he remarked, sitting by a member of the College who advised the Minister of Health. He had himself done his lifework as a member of the College for 52 years before he was elected fellow. It was the recollection of these years which led to his desire that members and fellows of the College should meet socially at least once a year.

After dinner the company adjourned to the museum where was set out a remarkable exhibit of methods of preparation, ancient and modern, of anatomical and pathological material, as well as a collection of syphilis literature dating from 1501 onwards. In the research laboratories members of the scientific staff were demonstrating: (1) the surgical treatment of cardiac ischæmia; (2) the local effects of intestinal strangulation; (3) the methods for studying the nature of the nervous impulses producing surgical shock; (4) the technique of producing hypertension by the nephrotoxic method; (5) the experimental evidence for the existence of an uretero-vesical sphincter.

The following is a list of those present:—

Council.—Sir Cuthbert Wallace (president), Sir Charles Gordon-Watson and Mr. Victor Bonney (vice-presidents), Sir Holburt Waring, Prof. Hey Groves (Bristol), Mr. C. H. Faggo, Mr. Sampson Handley, Prof. G. E. Gask, Prof. A. H. Burgess (Manchester), Prof. G. Grey Turner, Mr. Hugh Lett, Prof. R. E. Kelly (Liverpool), Prof. Graham Simpson (Sheffield), Sir James Walton, Sir Alfred Webb-Johnson, Mr. G. Gordon-Taylor, Mr. R. C. Elmslie, Mr. L. R.

Braithwaite (Leeds), Mr. H. S. Souttar, Mr. Girling Ball, Mr. Seymour Barling, Mr. C. Max Page, and Mr. W. H. Ogilvie.

Fellows.—Mr. J. C. Anderson (Sheffield), Mr. George Armitage (Leeds), Sir Robert Armstrong-Jones, Mr. R. St. Leger Brockman (Sheffield), Sir Buckston Browne, Mr. F. J. Cleminson, Mr. Charles Donald, Dr. Wilfrid Edgecombe (Harrogate), Mr. Ernest Finch (Sheffield), Sir Henry Gauvain, Lt.-Col. W. L. Harnett, Mr. J. P. Hedley, Mr. G. C. Knight, Sir Alexander MacCormick (Jersey), Mr. Terence Millin, Mr. H. W. L. Molesworth (Folkestone), Mr. A. M. A. Moore, Dr. Egbert Morland, Mr. Laurence O'Shaughnessy, Mr. Robin Pilcher, Mr. H. H. Rayner (Manchester), Mr. R. H. O. B. Robinson, Mr. B. T. Rose, Mr. J. C. Stewart, Mr. W. R. Underwood, Mr. Cecil Wakeley, Mr. K. M. Walker, Mr. A. J. Watson, Mr. Maurice Whiting, Dr. J. Williamson (Cleethorpes), Mr. Ralph Winterton, and Mr. Dickson Wright.

Members.—Mr. F. M. Allchin, Dr. J. Kingston Barton, Dr. C. Luther Batteson (Watford), Surg. Rear-Admiral C. M. Beadnell, Dr. Izod Bennett, Dr. Mewburn Brown (Birkdale), Dr. R. H. Browne-Carthew, Dr. H. A. Burt (Bath), Dr. W. Byam, Mr. Granville Chapman (Grimsby), Dr. H. B. Corry (Liss), Dr. H. Guy Dain (Birmingham), Dr. B. Dale (Birmingham), Dr. H. P. Daly (Birmingham), Mr. E. Gordon Dingley (Leamington), Dr. A. J. Gibson (Brentwood), Dr. F. J. S. Hall (Walmer), Dr. J. Walker Hirst (Huddersfield), Dr. John Holmes (Southport), Dr. A. W. Holthusen (Westcliff), Dr. N. G. Horner, Dr. Graydon Hume, Mr. A. E. Williams Idris, Dr. R. W. Ironside, Mr. Davenport Jones, Dr. G. D. Kersley (Bath), Dr. F. Desmond MacCarthy, Dr. J. V. Macgregor, Sir Arthur MacNalty (Ministry of Health), Dr. Robert McQueen, Dr. H. L. Marriott, Dr. W. d'A. Maycock, Dr. Charles Miller, Mr. J. C. Mottram, Dr. J. W. Nunn (Hadley), Dr. Bernard Potter, Mr. L. W. Proger (pathological curator), Dr. W. R. Reynell, Dr. G. H. Rossdale, Dr. Harold Sanguinetti, Dr. Eric A. Scott, Sir James Purves-Stewart, Dr. Dudley Stone, Mr. Maxwell Summers, Dr. J. H. Sykes (Birkdale), Dr. J. H. Thursfield, Dr. O. R. Tisdall (Harrow), Mr. A. Toulmin (Preston), Dr. R. F. Tredgold, Dr. H. E. Watkins (Newton-le-Willows), Dr. J. R. Whait, Dr. F. Harris White, and Mr. E. T. Williams (Stockton-on-Tees).

Others present.—Prof. H. H. Woollard, Prof. A. K. Henry, Mr. Horace Rew (director of examinations), Dr. John Beattie (conservator of the museum), Mr. Kennedy Cassels (secretary), Mr. A. J. E. Cave (assistant conservator), Mr. David Slome, Dr. R. J. Kellar, and Mr. W. F. Davis.

PUBLIC HEALTH

The House that Jerry Built

JERRY-BUILDING is not new—the epithet seems to have been used in Liverpool more than a century ago—but since 1918, owing to the boom in house-building, the great increase in owner-occupiers and the drive to abolish slums, the jerry-builder from being a private swindler has become a national menace. Dr. J. Greenwood Wilson, medical officer of health for Cardiff, read a paper[1] on Oct. 10th at the general meeting of the Association of Public Health Chief Clerks about the ways of jerry-builders and the evils of their activities. Houses, however soundly they are built, will always deteriorate, but it is not unreasonable to expect that this process should be slow and that the houses built to replace the worthless property which we are now pulling down in slum clearances will last until our clearances are completed. But there is so much bad building going on that in many instances the estates which have replaced old slums have themselves become new slums, at least in so far as the habitability of the premises is concerned.

The jerry-builder's case is that competition is keen and profits low, the people who buy his houses ask for innumerable embellishments which cannot be supplied at the price they are prepared to pay, and he cannot give the extras without cutting the essentials—about which his purchasers do not bother until they find out their faults. This is no excuse, but it is a reason. We might expect that houses built by local authorities should not scamp essentials to supply ornaments, for here specifications can be laid down and expert supervision is available. But unfortunately many authorities look upon their housing schemes as embellishments of their towns rather than as the solution of the housing difficulties of the people and pay more attention to what they think is artistic than to what is serviceable. Good materials are dear, but the difference between the first cost of the best and the worst is little compared with the future cost of repair and replacement. We shall not get rid of shoddy stuff unless we insist upon builders using materials of accepted standards. Mortar may mean anything from mud which washes out with the first storm to material as everlasting as Roman cement; and timber may mean fully seasoned beams of full length and stoutness, or green sappy laths, meagre in diameter and length, which rapidly shrink and decay. The damp course, the first thing to be considered, is expected to be of durable material impervious to moisture; it may be, and often is, brown paper with a little tar which with luck may be damp proof for a few months. No new house may be built until the plans have been passed by the local council and when completed it may not be sold or let without a certificate from the local surveyor; but this is no guarantee that the house is well built or that the materials used are satisfactory. So the certificate is a snare and not a guarantee. Most houses are bought through building societies, or by loans from local authorities on the hire-purchase system. The period of repayment is usually 20 years and, so long as the value of the property keeps pace with the decreasing loan, little attention is paid to the soundness of the investment. Some of our worst jerry-built houses deteriorate so fast that they become poor cover for their outstanding loans; therein lies some bar to the worst of bad building. But for what is a little less bad there is at present no safeguard.

The remedy for jerry-building may be found in (1) the prohibition of materials below an accepted standard, or (2) the requirement of a guarantee by the builder to the buyer. Neither of these do we possess, although Dr. Wilson reminds us that under the new Public Health Act local building by-laws must be revised every ten years and the revision submitted for approval to the Minister of Health. Dr. Wilson is not alone in his alarm that the laudable desire to rehouse the ill-housed might be defeated by shoddy building. When Dr. Addison framed his first Housing Act, public health experts foresaw the danger and warned local authorities that what was wanted was not "homes for heroes" but houses of the simplest construction which were built soundly and could be kept sound.

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[1] Medical Officer, Oct. 24th, p. 173.

CORRESPONDENCE

A CHRISTMAS APPEAL

To the Editor of THE LANCET

SIR,—By your kind permission I appealed to your readers in October for contributions towards the Christmas Gift Fund of the Royal Medical Benevolent Fund. Only a few weeks remain before Christmas and I am anxious to have sufficient funds to allow of the gift of 30*s.* to be distributed to all our beneficiaries. May I ask those who intend to contribute kindly to send their cheques as soon as possible to the hon. treasurer, Royal Medical Benevolent Fund, 11, Chandos-street, London, W.1.

I hope the response to this reminder will be a very generous one. Great would be the disappointment in the hearts of those beneficiaries if, through lack of funds, we could not give them the 30*s.* gift which they have so greatly valued in other years.

I am, Sir, yours faithfully,

THOS. BARLOW,
President.

Nov. 11th.

PROTECTION ON RETIREMENT FROM PRACTICE

To the Editor of THE LANCET

SIR,—It has been a matter of concern for some time to the council of the Medical Defence Union that year by year practitioners resign their membership at the moment of retirement from active practice, and this in spite of a letter indicating to them that even after retirement they are still liable to attack for alleged misdeeds whilst in practice. At the annual meeting of the Union held on Sept. 24th this year a proposition was put forward that to encourage retiring practitioners to maintain their protection special terms of life membership should be offered to them. This general proposal was approved by all those members of the Union present.

The council of the Union at its last meeting decided upon the details of an arrangement by which a member retiring from practice who had belonged to the Union for the period mentioned should become a life member upon a single payment as follows :—

Membership of—	One payment of—
10 years or less	.. Three guineas.
10 to 15 years	.. Two guineas.
More than 15 years	.. One guinea.

It is of the essence of this arrangement that the protection afforded by this life membership shall be co-related to the period when the member was in practice, and shall cease to hold good should such a retired member re-engage in practice in any form other than a casual attendance dictated by the circumstances of an accident or an emergency. If, therefore, a retired life member covered by this arrangement starts practice again it would be necessary for him to be reinstated as an ordinary member by paying the appropriate annual subscription until the time when he again retired, after which his life membership would be resumed without further payment.

Practitioners must appreciate that whilst the Statute of Limitations may be a good defence for actions brought more than six years after the occurrence, considerable expense may be incurred before the moment arrives when the Statute can be pleaded. Our records show many an instance of several years elapsing before an attack is made upon a doctor—in one case as long as 22 years.

The above arrangement becomes operative on Jan. 1st, 1937, and will be offered to all those members of the Union who have resigned during 1936 by reason of retirement from practice. It is possible that the arrangement when known will appeal to practitioners who retired prior to 1936. Should they wish to avail themselves of these provisions they will be required to pay such annual subscriptions as will make them continuous members up to and including the year 1936.

I am, Sir, yours faithfully,

ERIC PEARCE GOULD,
President of the Medical Defence Union.

49, Bedford-square, W.C.1, Nov. 5th.

*** This letter is commented on in a leading article.—ED. L.

BENGAL SPLENOMEGALY

To the Editor of THE LANCET

SIR,—It is to be hoped that the instructive article by Prof. L. E. Napier, entitled Tropical Macrocytic Anæmia, which appeared in THE LANCET of Sept. 19th (p. 679) will stimulate workers in other parts of India and the tropics generally to record more detailed clinical and hæmatological observations on anæmic patients. Excluding from his series cases of pernicious anæmia and tropical sprue, Prof. Napier differentiated two groups of megalocytic anæmia. One conformed to tropical macrocytic anæmia as described by L. Wills, the other, which was characterised by fever, splenomegaly, hyperbilirubinæmia, and reticulocytosis, he designated "Bengal splenomegaly."

A case identical with this so-called Bengal splenomegaly was recorded in detail by me two years ago under the heading "Rarer forms of megalocytic anæmia encountered in the tropics" (Trans. Roy. Soc. Trop. Med. and Hyg., 1934, xxvii., 563), but in this instance the patient had never set foot in Bengal. He was a Punjabi mussulman, aged 22 years, who had been a ship's fireman for 4 years. Careful inquiry at the time had elicited that he had never been further east of the Indian mainland than Delhi; he had spent several periods ashore in Bombay and on one occasion had called at Calcutta but had not left the ship. In 1933 he had suffered from recurrent fever and 6 months later had noted enlargement of the spleen. He was subsequently admitted to the Tilbury Hospital with gastro-intestinal symptoms and splenomegaly, and on Nov. 16th, 1933, was transferred to the Hospital for Tropical Diseases under Dr. Carmichael Low, where I investigated the case in detail.

No evidence was available that the patient had been on a deficient dietary prior to his admission to hospital. Physical examination revealed great enlargement of the spleen which extended below the umbilicus, severe megalocytic anæmia, a hyperbilirubinæmia of 4 units (indirect van den Bergh reaction), a reticulocytosis varying from 6·0 to 16·5 per cent., and an achlorhydria not responding to histamine. The megalocytic nature of the anæmia was confirmed by the Price-Jones curve. A mild ankylostome infestation was present; this was treated without improvement in the anæmia. Elaborate laboratory investigations were undertaken to exclude malaria and kala-azar, and a full course of Neostibosan was administered without effect. Finally the condition was cured by Campolon injections and liver extract therapy (equiv. of 1½ lb. daily) which induced a maximal reticulocyte response of 34·5 per cent. on the ninth day and rapid blood regeneration. The Price-Jones curve was restored to normal and on repeating the fractional test-meal the achlorhydria was found to have been replaced by a high normal acid curve (maximal HCl=55 N/10 c.cm. acid at 1¾ hours). On discharge the patient appeared perfectly fit with a normal blood count; the spleen had decreased in size but was still palpable.

In Bombay before the introduction of liver extract I had occasionally encountered cases with splenomegaly simulating pernicious anæmia in whom free HCl was demonstrable in the gastric juice, and in whom evidence of malaria and kala-azar was not forthcoming. Probably such cases fall into this category.

While there are justifiable grounds for regarding this disease as a new entity, the term "Bengal splenomegaly" hardly appears appropriate on geographical grounds, since the first case to be described came from the Punjab, and further observation will probably reveal a much wider distribution than the provincial appellation implies. A better name would be "Indian splenomegaly."

I am, Sir, yours faithfully,
N. HAMILTON FAIRLEY.

Harley-street, W., Nov. 11th.

THE TREATMENT OF PLEURAL EFFUSIONS

To the Editor of THE LANCET

SIR,—The Royal Society of Medicine's discussion (reported in your issue of Oct. 31st) merits I think further consideration. There appears to be a legitimate difference of opinion as to whether every so-called simple pleural effusion should be replaced by air, but all are agreed that every such case needs very careful convalescence along sanatorium lines under conditions which allow of accurate observation by a trained physician with ready facilities for sputum and X ray examinations, and that some such observation should be maintained for a period of a few years. Those physicians who have performed an air replacement in the early stages further desire that a competent physician should be available to maintain the resulting pneumothorax. These facilities can usually be obtained by notifying the case as one of tuberculosis with a request to the local authority to provide sanatorium treatment and later supervision by its tuberculosis officer. There are, however, definite disadvantages to this course, for notification does from time to time prejudice a man adversely as regards employment, insurance, and even social life. The Ministry's classification includes these cases in the pulmonary group, and this fact, although technically correct, tends to further the prejudice. There should not be this adverse effect of notification, but in practice it does exist in most areas to a greater or lesser extent. Whilst we are most of us agreed that academically pleural effusion is evidence of tuberculous infection, yet personally I hold that notification is not a legal obligation, as it cannot be described as tuberculosis in the ordinary meaning of the word. My first plea is therefore that these cases should be treated under the tuberculosis schemes as persons particularly liable to develop tuberculosis and for whom treatment may prevent its development, but without actual notification.

Again, in spite of Dr. Watt's protest (Nov. 7th) against the suggestion that cases of pleural effusion could be reinfected in a sanatorium, I find that physicians generally are by no means too happy about this impossibility, and this is evidenced by Dr. Burton Wood's letter as well as by the actual words which he used in the discussion. Even tuberculosis officers I think are not quite satisfied at times as to the propriety of sending their cases to a sanatorium, if reasonable convalescence and supervision can be otherwise obtained. I would like most deferentially to remind my former chief, Dr. Watt, that all institutions are by no means as well administered as King George V Sanatorium, and that even there the careless sputum-positive case may have the opportunity to infect others before his habits are discovered. My second plea is therefore that local authorities should provide what Dr. Burton Wood calls preventoriums, and which I should prefer in case of possible prejudice simply to call special convalescent homes. These could be organised along recognised sanatorium lines under the charge of experienced chest physicians who would collaborate with tuberculosis officers and others, and who would transfer to sanatorium the sputum-positive case when discovered.

There is a group of persons in much the same category as the pleural effusions—namely, those debilitated young adults who have been in contact with sputum-positive cases of tuberculosis. It is possible at present to do very little if anything for these persons to build up their general health so as to resist adequately the latent infection which most of them carry. They also represent a class of persons particularly liable to develop the disease, and could often with advantage be very suitably treated under observation in institutions such as those described. If convinced of the real need for such special convalescent homes, I believe that local authorities would be prepared to consider favourably their provision.—I am, Sir, yours faithfully,

C. O. S. BLYTH BROOKE,
Tuberculosis Officer, Finsbury.

Town Hall, Finsbury, E.C., Nov. 13th.

DUODENAL ULCERS AND CIGARETTE SMOKING

To the Editor of THE LANCET

SIR,—The frequent appearance of articles in the medical journals on the relative merits of medical and surgical treatment of duodenal ulcer marks the prevalence of the condition and points to its great importance. I do not remember, in these articles and dissertations, any suggestion of an investigation into the ætiology of the condition. My present line in life does not bring me into touch with any but an occasional victim of the duodenal ulcer, but, for many years, I was engaged in very general practice and included in it I had to meet and deal with epidemics and other public health matters. As a result, medical problems appeal to me from a very general point of view, and it seems to me that this approach to ætiology has been of help in elucidating one aspect of the causation of duodenal ulcer.

My first special interest in the disease occurred in 1924, when I had temporary opportunities of taking out-patient duty at a teaching hospital. It was soon quite obvious that the types of cases I met with were different from those that prevailed in the latter years of the nineteenth century when I first came into contact with clinical work. One outstanding novelty was the duodenal ulcer, and, when inquisitive students tried to corner me on the subject of its causation, I was driven to try and find something to satisfy their curiosity. It was here that my very general experience came to my rescue, as I put to myself the question—duodenal ulcer was unusual twenty-five years ago, and is prevalent now; is there any common alteration, since my student days, in the habits of men who, in 1924 at any rate, seemed to have a monopoly of this disease? The only habit I could think of was the cigarette habit which, starting in the South African War, acquired an almost universal prevalence in the Great War. When I put the idea forward to the students, they disagreed because they were nearly all cigarette smokers, and had no ulcers. "Yes, but wait till the fourth decade of your lives" I said. Since those days I have had only occasional experience with duodenal-ulcer patients, but all have been heavy smokers, and only a few days ago a patient told me that he could always produce trouble by resuming smoking. A radiologist has recently told me that he is now getting cases of duodenal ulcer among women who have acquired much the same cigarette habits as men. Of course all cigarette smokers do not get duodenal ulcers any more than all alcoholics get delirium tremens.

The late Lord Moynihan has stated that, if his duodenal-ulcer patients asked about smoking, he told them to expect a recurrence of trouble if they resumed their smoking. The late Mr. Tyrrell Gray also noted the prejudicial effects of smoking in these cases, but I have not yet met the article devoted to bringing out the importance of this question, and I am not in a position to take it up in a detailed scientific fashion, nor bring the matter into "a scientific net which I could weave or cast"—to adapt a line from your recent leading article on the factors of epidemicity.—I am, Sir, yours faithfully,

Harley-street, W., Nov. 12th. V. S. HODSON.

THE ÆTIOLOGY OF ACUTE RHEUMATISM

To the Editor of THE LANCET

SIR,—May I endorse very warmly Dr. Poynton's protest in your last issue against the use of the term "pyogenes" in reference to streptococci found in cases of acute rheumatism. It will, surely, be agreed that there is hardly any type of acute inflammation less likely to be suppurative than acute rheumatism, the focal lesions of which exhibit a cell-reaction of the granulation tissue type, and not the polymorph-phagocyte reaction of streptococcal suppuration. If the term pyogenes is used, merely for want of a better, in order to distinguish virulent from avirulent strains of streptococci, and infective from non-infective, a substitute could easily be found. In that regard a better adjective would be "pathogenes." But, since we still commonly use the term pneumococcus for the causal agent of acute lobar pneumonia rather than streptococcus pneumoniæ, why not use the name micrococcus, or streptococcus, or even diplococcus rheumaticus for the streptococci found in acute rheumatism?

When I began to work on the bacteriology of acute rheumatism at Guy's Hospital in 1901, Poynton and his co-worker Paine had already discovered and described their organism. But, unfortunately, Paine described it as a Gram-negative diplococcus. The organism which I isolated from a series of cases at Guy's was of streptococcal form and staining reaction, and I so described it. Shortly after, I was able, by the courtesy of Drs. Poynton and Paine, to examine carefully some of their slides, which they kindly showed me. On that occasion I quickly formed the opinion, which I expressed quite definitely, that what I saw was, in my judgment, a Gram-positive streptococcus, not more strikingly paired in arrangement than are many rapidly dividing streptococci in culture. I concluded that we had both discovered the same organism, and that my work was a confirmation of the main thesis put forward by Dr. Poynton, to whose long-continued later studies we owe so much. But our early divergence of description, on a point to which bacteriologists necessarily attribute decisive importance, doubtless operated unfavourably on general bacteriological opinion as to the validity of our observations. All the more so, when some bacteriologists of standing in London declared that they had sought carefully, but in vain, to confirm the findings.

With Dr. Poynton I must confess that time has been my master; but work goes on, though it be in other hands, and every year it seems to me more and more likely that time will eventually justify the conclusions of our forgotten labours. It happened that my own work on acute rheumatism was early brought to an end by removal to a new sphere, in which access to suitable clinical material was then lacking; but not before I had been able to convince myself, and state, that no method then available to me revealed any *qualitative* difference between the micrococcus rheumaticus and other pathogenetic streptococci. I had, however, discovered, with the help of Dr. Ryffel, that the streptococcus from acute rheumatism produced considerable amounts of formic acid in ordinary broth culture (and broke up added sodium lactate into equal moieties of formate and acetate), whereas the other strains of streptococci then examined produced formic acid in only small amount. This finding, I still venture to think, may not be without significance in the symptomatology and pathology of rheumatism.

I am, Sir, yours faithfully,

E. W. AINLEY WALKER.

University College, Oxford, Nov. 14th.

THE HEART IN EXERCISE

To the Editor of THE LANCET

SIR,—Among the annotations in THE LANCET of Oct. 31st is one with the above title, recording briefly some recent radiological observations on the heart "during and after exercise," and suggesting that they negative the "physiological dilatation" demonstrated in Starling's Law of the Heart,[1] and claiming that the increase of minute-volume (output of one ventricle per minute) is due to "active diminution in the size of the heart with increased emptying power." I do not share these views: and it would be unfortunate if the idea should prevail that physiology and radiology were not found to support rather than to contradict one another.

Hearts differ in size, but Halliburton states of an average heart that "during life each ventricle is capable of containing about three fluid ounces." They may contain less, or may eject only part of their content at any systole, but it is obvious that without dilatation they cannot eject more. Yet the increase of minute-volume as ascertained by Krogh, A. V. Hill, Douglas and Haldane and others (by differing methods) and accepted by physiologists generally implies, according to A. V. Hill, that in extreme exertion "each side of the heart ejects 200 c.cm. (close on 7 fl. oz.) at each beat." How a smaller container can by a harder push eject more than it contains is incomprehensible.

Starling's convincing demonstration of "physiological dilatation" which he shows to be an *active* process (not a passive one as mentioned in your note) and followed by an "increased energy of contraction" exactly meets the case; nor is it incompatible with radiographical findings. The output of the heart is determined by its intake, and the extra minute-volume of muscular exercise is due to the extra pumping of blood by the muscles into the veins. The more muscles at work and the harder they work the more copious is the venous filling, but it is only in extreme exercise (as in say a boat-race), when *all* the voluntary muscles are hard at work at the same time, that the extreme 7 fl. oz. ventricular output is reached. As soon as the athlete comes to rest the increased venous filling abruptly ceases, and before he can be examined after a race the minute-volume will have been reduced to resting level. A healthy heart may even be found to be smaller than before the race. Dumb-bell exercise, when only a limited number of muscles are at work, does not necessitate dilatation, while observations taken between bouts of exercise merely record conditions in an individual at rest.

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[1] Linacre Lecture, 1915.

The material briefly summarised above was discussed at some length in a fully documented paper on Physiological Dilation of the Heart to be found in the *British Medical Journal* of Feb. 1st, 1930.

I am, Sir, yours faithfully,

Tunbridge Wells, Nov. 12th. CLAUDE WILSON.

ŒSTRIN IN TOXIC GOITRE

To the Editor of THE LANCET

SIR,—In your issue of Oct. 24th Dr. A. W. Spence puts forward very sound arguments, based on experimental work, for the treatment of toxic goitre with œstrin: the principle of which is to inhibit the anterior pituitary thyrotropic hormone which is thought to be overacting. The disappointing negative results in his series of six cases do not convince me that this mode of attack is in fact useless. I would suggest that it is not possible to draw any such conclusions as to its efficacy from his experiments. My reasons for such a statement are based partly on work by Prof. B. Zondek (THE LANCET, Oct. 10th) and others, and my own experiences over a period of two years with massive doses of Progynon in the treatment of kraurosis vulvæ.

Zondek reports that to cause adequate dwarfing of cockerels, 1,600,000 mouse units of Dimenformon had to be administered in 112 days. In the rat, similar dwarfing was produced after giving 365,000 mouse units in 112 days. The cockerels required about 4·4 times the dose given to the rats. Zondek says that the gonadotropic function is the first to be impaired, and then the growth hormone: relatively more treatment being required to inhibit the latter. We then examined Dr. Spence's dosage and duration of treatment and find that he draws his conclusions after administering between 550,000–1,000,000 international units in periods between 11 and 20 days respectively. It has been shown that dosage for individual animals can be calculated roughly on a weight-for-weight basis, although different animals show slight divergences from this. According to this reckoning Dr. Spence's patients, weighing from 80–100 lb., would need approximately twenty times the dose required by Zondek's cockerels, weighing about 4 lb. Judging by the comparative doses, weight for weight, of Zondek's rats and cockerels, this ratio might be taken as two-thirds of the figure mentioned above. In that case it would seem that a suitable minimum dose expected to inhibit the pituitary growth hormone in humans would be in the region of 14,000,000 I.U. in a similar time of 112 days.

After a short experience of treating cases of kraurosis vulvæ with progynon, in women past the menopause, I found that relief was not usually obtained until about 1,100,000 international benzoate units had been given in 15 days, and in some cases full treatment consisted of 5,520,000 I.B.U. in 147 days. These are much larger doses than normally used in human therapy. Dr. Jones and Mr. MacGregor (THE LANCET, Oct. 24th) were able to inhibit appearance of gonadotropic hormone in the urine of post-menopausal cases by doses almost as large as mine, over periods up to 60 days.

From these rough figures it would appear that before inhibition of thyrotropic hormone (at a later sequence probably than gonadotropic and growth hormones) can be effective, a suggested daily dose of 100,000 I.B.U. for 140 days, or 200–300,000 I.B.U. biweekly for a correspondingly longer period, should be tried. I offer this as a suggestion, though at the same time I appreciate the difficulty of applying it in practice to cases of toxic goitre in hospital. But until it has been done, I do not think that one is in a position to state that œstrin is not of use in the treatment of toxic goitre, even though Zondek intimates that œstrin may even stimulate thyrotropic and parathyrotropic pituitary hormones.

I assume, in this argument, that 1 M.U. (Zondek)= 1 I.U. (Spence)=1 I.B.U.=0·1 gamma of œstradiol benzoate, since both dimenformon (Organon) and progynon (Schering) are œstradiol benzoate dissolved in oil. I am, Sir, yours faithfully,

Bristol, Nov. 13th. GEORGE L. FOSS.

CHARITABLE APPEALS ON A COMMISSION BASIS

To the Editor of THE LANCET

SIR,—In view of the publicity given in your last week's issue to the libel action, Jewett *v.* Odhams Press Ltd., the committee of management of Queen Charlotte's Maternity Hospital would be glad if you would give the same publicity to the statement that they have no record of Miss Jewett having been employed by them. The method of collecting money on commission is one which would not be considered by the committee, or receive their sanction.

I am, Sir, yours faithfully,

H. B. STOKES,
Secretary-Superintendent.
Queen Charlotte's Maternity Hospital,
London, N.W.1, Nov. 16th.

DELTOIDITIS IN GOLFERS

To the Editor of THE LANCET

SIR,—Among tennis players the so-called tennis-elbow is well known, but I am unaware that an analogous condition in those who play golf has been described. The trouble exists exclusively in the left shoulder, and I suggest calling it "golfer's shoulder." I have recently met with the condition in two English golfers who came to me at Aix for rheumatism in the neck. The first, 69 years of age, had played golf once a week for 35 years. The second, aged 52, complained of lumbago; he had played golf four or five times weekly for 15 years. Both presented deltoiditis in the left shoulder.

The chief characteristic sign is pain in the left arm at the insertion of the deltoid. There are two varieties of pain. One is spontaneous, occurs without reason, and may disappear for several days. When present it is in the form of an aching and stiffness when the deltoid is brought into action, the elevation of the arm to the horizontal being difficult. The other pain is constant and unvarying, provoked by pressure on the area of the humeral insertion of the deltoid, pressure on other parts of the muscle being painless. There is no trace of hypertrophy nor of wasting of the deltoid. The pain may be compared to that of tennis-elbow and is very probably due to strain on the insertion of the deltoid when swinging the club. The pain is not increased by play. One of the patients could not remember when he first felt it, although he had been a golfer for 35 years. The other, who had played for 15 years, first noted pain only six months ago.

The trouble is a very mild one and occurs in the left arm only. As my patients were in Aix only for 21 days, I could not do much for them beyond using daily mild massage under hot mineral water for ten minutes and injections of sodium iodide at the painful spot. These seemed to relieve the pain.

I am, Sir, yours faithfully,

Aix-les-Bains, Oct. 31st. ABEL FRANÇON.

RENAL INSUFFICIENCY IN ADDISON'S DISEASE AND DIABETES

To the Editor of THE LANCET

SIR,—In your last issue Prof. Jimenez-Diaz presents an interesting suggestion of the cause of metabolic failure and death in Addison's disease, ascribing it primarily to failure of ammonia formation by the kidney. When, however, he ascribes death in diabetic coma with disturbed renal function to a similar failure we think he is wrong. At any rate, we did not find this when we were investigating the function of the kidney in diabetic coma (Quart. Jour. Med., 1935, iv., 53). We found that the amount of ammonia excreted bore a fixed and normal relationship to the amount of acid in the urine not combined with fixed base. In simpler language the excretion of ammonia remained normal even in severe diabetic comas in which other functions of the kidney such as the excretion of urea and glucose were seriously disorganised. We are, Sir, yours faithfully,

R. D. LAWRENCE,
London, Nov. 18th. R. A. MCCANCE.

VOLUNTARY HOSPITALS AND THE NEW ACT

To the Editor of THE LANCET

SIR,—The aspect of Section 2 (2) of the Voluntary Hospitals (Paying Patients) Act with which I was concerned in my paper read to the Medico-Legal Society was, of course, far less important than the point to which Lord Luke directs attention. Hospitals may now charge for "medical and surgical attendance and treatment." Three years ago the law on the subject was laid down by Mr. H. C. Dickens in a paper read to that society (Med.-Legal and Crimin. Rev., vol. i., p. 199) "as a settled proposition that a governing body does not undertake to treat, whether operatively or otherwise, or to anæsthetize, or to nurse the patient who enters their institution." If the hospital charges for treatment the patient will believe that the hospital is liable for the treatment and even that he is paying on a contract to that effect. Forewarned is forearmed.

I am, Sir, yours faithfully,

C. E. A. BEDWELL,
House Governor, King's College Hospital.
Denmark-hill, S.E., Nov. 17th.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index.

FROM A DOCTOR IN RETIREMENT

III

IT has always been to me a matter of wonder how the journalists who write the chatty columns of topical comments in the newspapers manage to do so, day after day, year after year. Surely there must be blank days when nothing on earth occurs to them to write about. But no close reader of the daily or weekly press can have failed to notice what generous space is always given to news and jottings about animals. Apparently when a journalist finds himself in a dilemma for a subject to write about he turns to nature, or else to stories about dogs. These two topics, for no one would class dogs under the heading of nature, seem to have an irresistible attraction for English readers. Scarcely a day passes but you read in your newspaper a letter addressed to the editor describing some bird which the writer has observed picking crumbs on his windowsill, or recounting some extraordinary and almost human action on the part of a dog. Some of these anecdotes come from "constant readers," others from professional newspaper correspondents, and both show a greater credulity than knowledge of the habits of animals. On July 4th, 1935, to be precise, there appeared in a London newspaper the following telegram from its Paris correspondent :—

> A rabid rabbit at Lille has just killed 10 fowls and 3 ducks, in addition to biting a dog and 2 cats (which have been destroyed), and a man, his wife, and 3 children.

In the same newspaper was printed an account from its New York correspondent, which described how a poor girl student at one of the universities, in order to earn some money to pay her college fees, publicly swallowed a live goldfish. One wonders what the American Society for the Protection of Animals was about to allow such a thing to take place without protest. I hope that the editor of the *Ilfracombe Chronicle* will raise no objection if I give in full a letter he printed in his estimable journal not long ago, written by a "Visitor." It certainly demonstrates, as I think has never been done before nor done half so meticulously, the thinking abilities of one of the lower forms of marine life. The letter is headed :

"CAN LIMPETS THINK ?"

> SIR,—Last week, on the beach at the Tunnels, Ilfracombe, I saw something, to me, almost unbelievable. With my walking cane I dislodged a limpet which fell into a pond about two inches below the water level and rested on a rounded ledge upside down. Watching it slowly moving the fleshy part, endeavouring to get hold of something—which it could not do—to turn over, I noticed another limpet about six inches deeper in the pool slowly moving along. It came up to the overturned limpet and moved under it. The first limpet was then able to reach with its extended fleshy part the shell of the other one, and so turned over on the other one's shell. It then moved off the shell to the rock. I could hardly believe what I saw, and think that possibly the occurrence might be interesting to some of your readers. The whole operation lasted about 45 minutes.

* * *

It is not often that reports of strange behaviour in animals reach our newspapers from the Scandinavian countries; most of the more extraordinary ones come from the Homeland or else from God's

Own Country across the Atlantic. It is therefore with all the greater pleasure that I am able to rescue from oblivion the following touching story of a little animal's heroism, which was reported from Sweden.

> ### HEDGEHOG FIGHTS FIRE
>
> After a farm worker at Ydresocken, Sweden, had set fire to a heap of rubbish he saw a hedgehog come out. The animal went to a pool, filled its mouth with water, and then went back to the burning wood. It squirted the water from its mouth on to the flames, and returned to the pool for more. The man kicked aside the burning branches and in the middle found five young hedgehogs.

It was exasperating of the foreign correspondent who sent this moving narrative of maternal heroism to neglect to tell us what was the end of the story. Was it a happy one? Was the brave and prickly mother and her five little ones given a new home? Was the hedgehog rewarded in any way, with a medal or a bowl of bread and milk?

* * *

As to stories about dogs, no editor dare refuse to print one. A West Sussex newspaper, reporting in full the solemn Armistice rites at a local village, gave the following example of canine sagacity.

> On Monday the two minutes' silence was faithfully observed in the district, and an extraordinary incident was witnessed by the writer in Bramber. Immediately the silence commenced a large Airedale dog from the Castle Hotel walked to the centre of the road, stood perfectly still with bowed head during the whole of the silence, and at the close of it walked calmly away.

But it is at the funeral services of fox-hunting men that we see the dog-fanatic at his best, or worst. At these solemn ceremonies, dog-lovers and hunting men in general appear to lose all sense of proportion. Here is how they laid to rest in consecrated ground the human remains of a late master of fox-hounds.

> ### HOUNDS AT MEMORIAL SERVICE: FORMER M.F.H. BURIED
>
> Hounds from the packs of the Croome, Worcestershire, Cotswold, and Ledbury Hunts were present yesterday at a memorial service at Upon-on-Severn, for Mr. ——, master of the Croome from —— to ——.

But read the description of the funeral of a hunting baronet of Staffordshire, who was for many years master of the South Staffs hounds. The paragraph is headed:—

> ### "GONE TO GROUND": HUNTING CALL AT A BARONET'S FUNERAL
>
> The coffin was borne on a farm lorry which was preceded by the huntsman and hounds, and followed by a favourite horse of Sir ——. As the coffin was being lowered into the family vault the head huntsman sounded the call "Gone to ground."

All of which goes to show how difficult it is if you are not a hunting man yourself to judge or understand the mentality of those who are.

* * *

All this grave chatter about funerals and burials naturally leads the mind to another solemn subject. To some of us who have, perhaps, minds with a morbid kink in them, the "In Memorian" column of local papers often rewards perusal. Here is an extract from one which appeared in a Midland newspaper.

We often think of you,
We often speak your name,
But the only answer we get
Is your photograph in a frame.

Sometimes these homely verses to the departed give the impression that there is more meaning behind the actual words than appears apparent to the reader who did not know the deceased, nor his or her family or relations. In the following, one cannot but suspect that the bereaved were having a sly dig at some persons unnamed.

We never have, we never will
Forget our mother kind;
She never done a dirty trick
Like some she left behind.

And this sad and solemn subject reminds me of an epitaph which can be read on the head stone on the grave of a deceased lady poultry-farmer at St. Albans.

Sacred to the memory of Miss Martha Gwynn,
Who was so very pure within.
She burst the outer shell of sin,
And hatched herself a cherubim.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Comdr. J. V. Williams to *Victory* for R.N. Hospital, Haslar.

Surg. Lt.-Comdr. W. Greaves to *Penelope* on commg.

H. C. Brewerton, R. D. Johnston, G. P. Pearse, C. E. Fitton, and R. A. Hilton entered as Surg. Lts (D) for short service, and all apptd. to R.N. Hosp., Haslar, for course of instruction.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Lt. (D) K. V. M. Taylor-Milton promoted to Surg. Lt.-Comdr. (D).

Surg. Lt. W. D. Williams to *Drake* for R.N.B.

Surg. Sub-Lt. R. T. May promoted to Surg. Lt.

ROYAL ARMY MEDICAL CORPS

The following candidates have been selected for short-service commissions as lieutenants on probation in the R.A.M.C.: A. F. H. Keatinge, Dublin Univ.; G. G. Smith, St. Thomas's; J. A. Manifold, St. Thomas's; R. S. Hunt, Cambridge Univ. and St. Bart.'s; W. Thomson, Glasgow Univ.; P. H. Ball, St. Bart.'s; G. B. Heugh, London Hosp.; W. Stewart, Aberdeen Univ.; W. G. MacDougall, Edinburgh Univ.; R. A. Smart, Aberdeen Univ.; R. J. Niven, St. Thomas's; J. V. L. Farquhar, Cambridge Univ. and St. Bart.'s; E. A. Smyth, Dublin Univ.; J. A. Davidson, McGill Univ.; E. H. Evans, Cardiff Univ. and St. Bart.'s; J. A. V. Nicoll, St. Bart.'s; E. W. O. Skinner, St. Mary's; D. G. Levis, Cambridge Univ. and St. Bart.'s; C. L. Lewis, St. Bart.'s; W. D. Eustace, R.C.S., Ireland; I. N. Fulton, Cambridge Univ. and St. Bart.'s; N. R. Murdoch, Glasgow Univ.; and S. H. Gibbs, Edinburgh Univ.

Short Serv. Commissions: Lts. (on prob.) restd. to the estabt.: W. N. L. Haynes, J. R. Kellett, and K. G. F. Mackenzie. Lt. (on prob.) S. E. Osborne resigns his commn.

ROYAL AIR FORCE

Wing Comdrs. C. T. O'Neill to Headquarters Coastal Command, Lee-on-Solent, for duty as Deputy Principal Medical Officer; F. J. Murphy, to Headquarters, R.A.F., Middle East, Cairo, Egypt, for duty as Deputy Principal Medical Officer (Hygiene); W. F. Wilson, M.C., to No. 4 Flying Training School, Abu Sueir, Egypt, for duty as Senior Medical Officer.

INDIAN MEDICAL SERVICE

Majs. to be Lt.-Cols.: H. R. Cursetji and S. L. Bhatia, M.C.

Lt.-Col. M. A. Rahman retires.

To be Lts. (on prob.): M. C. L. Smith, W. Laurie, B. M. Wheeler, A. H. W. Mitchell, C. H. Bliss, B. J. Doran (secd.), R. B. Davis, F. MacD. Byrn, and J. H. Cater.

Indian Medical Department.—Maj. (Sen. Asst. Surg.) J. B. D'Souza, M.B.E., retires.

COLONIAL MEDICAL SERVICE

Dr. L. W. Fitzmaurice has been appointed Assistant Medical Officer, Bahamas.

OBITUARY

ROBERT HENRY ELLIOT, D.Sc. Edin., M.D. Lond., F.R.C.S. Eng.

LT.-COL., I.M.S. (RETD.)

Colonel R. H. Elliot, whose death on Nov. 9th was briefly recorded last week, had made his name as an ophthalmologist before retiring from the Indian Medical Service at the age of 50 and with the most fruitful part of his life still before him. Born in the Bombay Presidency, the son of an officer in the 4th King's Own Regiment, he was educated at Bedford School and St. Bartholomew's Hospital, where and at Netley he took most of the available prizes. Entering the Indian Medical Service in 1892 he passed the usual period of military service on the North-West Frontier and in Burma. On being transferred to the Government of Madras for civil employment his qualities were soon recognised and he obtained various posts at headquarters. Later he was seconded to work with Sir Thomas Fraser in Edinburgh on the action of snake venom, and his experience there gave him a bias towards snakes and their habits which lasted through life. After visiting the leading European ophthalmic clinics, he was appointed superintendent of the Madras Ophthalmic Hospital, an appointment which offered him scope to develop his powers of organisation, and the hospital soon became prominent in the investigation and treatment of eye diseases. Elliot was himself a brilliant operator, first making his mark as such in the treatment of chronic non-congestive glaucoma. He quickly recognised the value of Lagrange's work and set himself to devise a safe and simple method of securing a filtering scar. The operation of sclero-corneal trephining which bears his name was the result.

COLONEL ELLIOT

[*Photograph by Elliott & Fry*

Ill health due to the tropical climate compelled him to leave Madras in 1912, when he took up consulting work in London and soon acquired a large practice. He was appointed ophthalmic surgeon to the Prince of Wales's Hospital at Tottenham and to the Hospital for Tropical Diseases. His knowledge of the tropical conditions which affect eye disease was unique, a fact to which his book on "Tropical Ophthalmology" bears witness. His vivid lectures at the London School of Hygiene were much valued by the students. Convinced that asthenopia plays an important part in provoking migraine he paid close attention to the correction of errors of refraction and excelled in this branch of his specialty. After his retirement from India he joined the council of the British Medical Association and was for five years chairman of its naval and military committee. The officers of his old service owe him a debt of gratitude for the ability with which he advocated their interests; his efforts were instrumental in securing in 1920 a 50 per cent. increase in grade pay and many improvements in the conditions of life. Dr. Alfred Cox has informed us of the skill, courtesy, and determination with which Elliot conducted this successful campaign.

Elliot was a prolific writer and possessed a fine literary style. His wife, who was the daughter of Surgeon-General J. A. C. Hutchinson, helped him in the preparation of his books on ophthalmic subjects, and her death 12 years ago dealt him a blow from which he never fully recovered. In addition to books and papers on professional subjects he frequently contributed articles to *Blackwood's*. Whilst in India he interested himself in conjuring and became proficient himself: for many years he was chairman of the Occult Committee of the Magic Circle. Much of his knowledge of Indian magic is recorded in "The Myth of the Mystic East."

But outside medicine many people will remember Elliot best as founder and chairman of the British Health Resorts Association. This movement had its origin in a letter which he wrote to the *Times* after Lord Snowden's statement that £31,000,000 were being spent every year in health and pleasure resorts abroad with a hint that some at least of this money ought not to leave the country. This was exactly the kind of situation which appealed to Elliot's temperament and he threw himself at once into the formation of the Association with characteristic energy. His colleagues on the executive testify to his unselfish and wholly disinterested efforts on its behalf. Until recently he never missed a meeting of either the executive or the medical advisory committee and he took part in the conferences held in the different health resorts of the country. Elliot required indeed many outlets for his exceptional mental energy. Though extremely courteous in his manner, he could, on occasion, be very outspoken: the injuries inflicted by cataract couchers and other unqualified persons on the Indian public, and mysticism of any kind were matters on which he was easily roused.

The later years of his life were marred by ill health but despite much suffering he carried on with characteristic courage, and he died, as he wished, in full work, at the age of 72. He leaves three sons.

JOHN MAY HERBERT MUNRO, M.R.C.S., L.R.C.P., D.Sc.

THE death occurred on Nov. 6th at Bath of Dr. J. M. H. Munro, bacteriologist and a distinguished worker in chemical research connected with agriculture. He was born in 1855, obtained an exhibition in chemistry at the University of London, graduated in science, and obtained the D.Sc. in 1877. He became associated with Prof. John Wrightson and Mr. William Fream in the foundation of Downton College, the agricultural institution in Wiltshire which was started as a private venture. Munro worked particularly in association with Wrightson, a practical farmer, and out of their joint researches came important advances. We have received from a distinguished senior who was familiar with Munro's work in agricultural chemistry, the following estimate of it: "When I first heard of Munro he was a brilliant student and would, I fancy, have passed an examination in any branch of science to which he had turned his attention and he could, and in a measure did, adapt himself to different sciences. I think it may be said that his fault was that he did not make enough of his work, for a lot of which he has never received credit and possibly a good deal of it has never come to light. It is now generally allowed that to him is due the real credit of discovering that basic slag, at that time a waste product of the steel industry, if ground fine, would prove a valuable material for the improvement of pasture. Also, to my knowledge, he did independent work in isolating the organisms playing a part in the formation of nodules in the roots of different ligneous plants. I always regarded him as a man of great ability who, from modesty and the omission to bring his work to the light, failed to obtain the scientific reward to which his work entitled him."

In 1886 Dr. Munro joined the medical school at Bristol, gaining an entrance scholarship held at the Bristol Royal Infirmary. He qualified as M.R.C.S., L.R.C.P., and in 1900 took special courses in bacteriology to the study of which he afterwards devoted himself. He became pathologist to the Royal Mineral Water Hospital at Bath in 1913 and public analyst for the city, and made communications to medical and scientific journals which showed the all-roundness of the equipment pointed to by his diplomas of F.I.C., F.C.S. In spite of his considerable age he had a mind which was both active and agile. For 22 years he was honorary pathologist at the Royal Hospital specially devoted to the care and investigation of rheumatic disease, and during this time the pathological laboratory under his direction grew apace. In 1913 barely one hundred investigations were performed in the year, whereas latterly estimations have run into several thousands each year. In his latest work he collaborated with Dr. Aldred-Brown and an interesting paper by them was published in THE LANCET in June, 1934, on the blood sedimentation-rate and the plasma proteins. Further work on the same subject in connexion with chronic rheumatic disorders appeared in the *Quarterly Journal of Medicine* in 1935.

Dr. Aldred-Brown writes: "Munro was a keen bacteriologist and his knowledge of chemistry was invaluable in tackling biochemical problems. As recently as two years ago he was still engaged in research in connexion with the blood plasma proteins and also with the radon emanation of radio-active springs. He was greatly admired by his colleagues for the uprightness of his character and his quiet, unassuming manner. His wife died two years ago and there can be little doubt that he never really recovered from the loss he sustained."

By the death of Dr. Munro scientific medicine has lost a valuable exponent.

ISABELLA MEARS, L.R.C.P.I.

Dr. Isabella Mears, who died at Whitehouse, Inveresk, Midlothian, on Nov. 11th, was one of the early pioneer medical women. She was born on Dec. 20th, 1853, the daughter of James Bartholomew, farmer, West Lothian. After training as a teacher she desired to undertake mission work abroad. Having this end in view, she was advised by the late Dr. Colin Valentine to obtain such medical education as was at that time available to women. With her father's whole-hearted support she went to London in 1875 and entered the School of Medicine for Women, just opened by Dr. Sophia Jex-Blake. The number of students was small and she had to fit into the curriculum of classes already in existence as best she could. Opportunities for clinical work there were almost none; the Royal Free Hospital was not yet open to women. A few beds in Dr. Garrett Anderson's hospital in Marylebone-road were available, and she seized the opportunity also of dispensary work in Seven Dials. Her midwifery experience was obtained in Dublin, where she had to take out her course along with the midwives. Amongst the lecturers at the school was Sharpey Schafer, whom she had the opportunity of meeting two weeks before his death and of exchanging reminiscences. Another lecturer was William Pope Mears, of London Hospital, who taught anatomy. In 1879 she married Dr. Mears. At that time no British qualification was open to women. Mrs. Mears went with her husband to Newcastle where he had been appointed to the Durham School of Medicine as anatomist. In 1881 she obtained the qualification L.K.Q.C.P.I., now L.R.C.P.I., the Royal College of Physicians of Ireland having opened their qualifying examinations to women. Her name was that of the twenty-fifth woman on the Medical Register.

She engaged in general practice in Tynemouth for nine years, when she and her husband decided to carry out their early intention of mission work abroad. They were in Foochow, China, under the Church Missionary Society, from 1890 to 1893, when they had to return on account of Dr. W. P. Mears's ill health. In 1895 she and her husband settled in Edinburgh for the education of their children. There in 1899 (as has been noted lately in a letter to the *British Medical Journal*) they opened at Woodburn, Edinburgh, one of the earliest sanatoria in Britain for the treatment of pulmonary tuberculosis after visiting Dr. Walther at Nordrach. Dr. W. P. Mears died in 1901 and his wife continued her work at Woodburn till 1922 when she retired.

In addition to her medical work Dr. Isabella Mears was deeply interested in Chinese religion and philosophy. Her translation of the Tao Teh King was published in 1916, and after she retired she studied and made a tentative translation of one of the most difficult and ancient of the Chinese classics—the Yih King, embodied in her book "Creative Energy" in 1931.

She is survived by two sons and two daughters, two of whom are in the medical profession.

HERBERT DOBIE, M.D. Edin.

THE death occurred on Nov. 14th of Dr. Herbert Dobie, a member of a family whose professional work in Chester and the neighbourhood is well known. Dr. Dobie was the son of the late Dr. W. M. Dobie who may be remembered as the medical attendant of Mr. Gladstone during his last illness at Hawarden Castle. He was educated at Marlborough and, proceeding to the University at Edinburgh, graduated as M.B., C.M. in 1889, proceeding later to the M.D. degree. He was for a time resident surgeon at the Royal Infirmary, Edinburgh, and did considerable post-graduate work in Vienna, Berlin, and Dresden before returning to Chester to coöperate in the family practice. Outside his medical work, Dr. Dobie was a well-known naturalist.

HARROGATE GENERAL HOSPITAL.—A new maternity block is to be added to this hospital for which £5000 has been raised by the Harrogate members of the National Council of Women. This sum is to be made up to £8000 by the county council and Harrogate town council. There will be four one-bed wards and two wards with four beds in each.

PARLIAMENTARY INTELLIGENCE

WORKMEN'S COMPENSATION

IN the House of Commons on Nov. 13th Mr. MAINWARING moved the second reading of the Workmen's Compensation Bill. Its objects, he said, were to broaden the legal definition of dependants, to ensure an adequate amount of compensation, to remove the administration of compensation from the present court procedure, and to create an independent compensation or accident fund. At present the intentions of Parliament were not being carried out and the existing Act was being administered by citative law. The courts were frequently dependent on medical opinion—he would not call it medical evidence. In certain types of case medical opinion was, no doubt, unavoidable, but in trade-union circles there was a suspicion that medical science was being prostituted in the courts. Medical men in compensation cases were taking precisely the same attitude that members of the legal profession did. The parties could get medical experts to say anything they wanted in their favour. There was an astounding freedom in the courts to experiment in so-called medical theory, and this applied to industrial disease even more than to industrial accident. Take nystagmus. He had heard medical men assert that no man could possibly suffer from it for more than four years. He had himself suffered from nystagmus in 1912, and he still suffered from it. Very few men recovered from it. But the terrible ramifications of the disease evidently passed the comprehension of medical men who to-day might be engaged by an employer, to-morrow by the workman, and on the third day might be engaged under the Act as a referee.

Mr. ERSKINE-HILL who moved the rejection of the Bill said that the measure would impose an intolerable burden upon industry.—Mr. FOOT said the main objection to the Bill was to be found in the clause which provided that the Board should have exclusive jurisdiction; it was, in effect, to be above the law. —Mr. ROWSON asked Mr. Foot and other lawyers to consider whether there were no circumstances under the present law when the workmen and the employers had no right of appeal. Were there no occasions when there was an agreed reference to a medical referee? The decision of a medical referee could not be upset, and there was machinery in this Bill for improving the position. They were not satisfied that the medical referee was always the most competent person to decide the future of the workman. When the medical referee certified a man to have totally recovered from nystagmus, he was thereby deprived of his right of getting employment. Very few cases were taken back into the industry.

Mr. CASSELLS said that the question of medical referees was dealt with in clause 28 which said "No action shall lie for the recovery of compensation, but all claims for compensation shall be heard and determined by the Board." That meant that the Board was accepting as its own particular responsibility the responsibility which meantime devolved upon medical referees. Were the Government satisfied with the system of medical referees as it existed at present? The referee was expected to be completely unbiased, but in practice the system was harsh on the workman's claims. The referee was often asked to sit in judgment on questions which should devolve upon a judge. In Scotland there were many doctors sitting as medical referees, and at the same time acting as medical advisers to insurance companies on behalf of employers. That was unfair to everyone concerned.

THE HOME OFFICE VIEW

Mr. GEOFFREY LLOYD said that in the industries which made returns to the Home Office some 400,000 claims were paid yearly under the Workman's Compensation Acts. On a reasonable calculation for all industries it was probable that between 500,000 and 600,000 claims for compensation occurred every year. The number of cases that came into court was certainly less than 2 per cent. and of the cases that came into court a number were settled outside. For example, in 1933 only 2514 cases had to be finally settled by the court, and of those nearly four-fifths were settled in favour of the workman. There were 16,000,000 persons covered by the Workman's Compensation Acts, and about £9,000,000 was paid yearly in compensation. The present system was therefore giving alleviation to large numbers of people in industrial disablement. There was, of course, room for improvement, but the points of grievance were not sufficient justification for this Bill. In so far as difficulties existed they could be dealt with in other and better ways. It was true that medical ideas about nystagmus had changed a good deal during the last generation, but it was difficult to think of any Act of Parliament which was not founded on the accepted medical ideas of the time. It was true that in the old days doctors considered that nystagmus was specifically an eye disease. The modern view was that although one aspect of the disease might take the physical form of oscillation of the eyes, there was a psychoneurotic illness which affected the whole personality and of which the oscillation was one expression. If the view was accepted—and he thought it was now to a considerable extent—it made the question of nystagmus from the points of view of compensation and of curing the men extremely difficult. In present circumstances there was a sort of vicious circle. A man got the disease, he was in a difficult general condition, he was taken off his work, and he was not likely to recover while he was drawing compensation (which was clearly much less than his wages) and while he was doing nothing and becoming more and more depressed. The employer, not unnaturally, realised that there was an added compensation risk in re-employing somebody when he either had nystagmus or might have had it and recovered from it to some extent. It seemed that the line of progress might be that of providing some form of suitable light work together with compensation, so as to relieve the man while he was suffering from the disease by taking him away from the conditions in which he could not possibly get a real cure. This problem was being thoroughly examined by the committee over which Judge Stewart presided.

There might be a case as to whether a medical referee should be employed in private practice, or whether he might on some occasions appear for employers or trade-unions and at the same time be a medical referee. But it must be remembered that it was necessary to have referees on the spot and of a high professional standard. In many districts there was not an unlimited supply of medical men; they had to be used for more than one purpose. In regard to the feeling whether it could be right for one man to make an absolute decision on a case, he thought the question of a right of appeal might be considered. That had already been referred to the Stewart Committee. The restoration to health of the injured workman was the most important aspect of the problem. There had been great developments recently, not only in new methods of treating fractures, but in knowledge of the psychological factors which affected recovery and there was at present a strong interdepartmental committee going into the whole subject.

But this Bill was a revolutionary measure. It would revolutionise the workman's compensation system by sweeping away the jurisdiction of the courts, by sweeping away the insurance companies and mutual indemnity associations, and by radically altering the medical arrangements. It would provide instead a small body of dictators uncontrolled by the ordinary law of the land, with the power to raise evies from the employers at whatever rates they hought fit for the purpose of paying claims.

The motion for the second reading of the Bill was egatived by 115 to 109.

NATIONAL PHYSIQUE

Lord MOUNT TEMPLE's question in the House of ords on Nov. 10th, what steps the Government roposed to take to improve the physical fitness f the young people of this country, led to an mportant discussion. In Germany, or Italy, or, bove all, in Sweden, he said, young people were far etter equipped by physical health than in this ountry. The Secretary of State for War had said hat if all the would-be recruits in 1935 had come p to the physical standard there would have been o deficiency in the Army. According to the War ffice representative in 1935 47 per cent. of candidates or the Army had to be rejected though the standard f physical fitness for the Army was not very high. We had maternity care and a reduction in the infant eath-rate, a very mixed blessing if the unfit were hereby being preserved, but no care was being taken f the physique of young people. Any plan to this nd should be worthy of the object in view. The olicy of compelling unemployed youths to attend vening continuation schools might well be carried urther with the object of remedying their bodily efects. In his view any youth, whether employed r not, who could not pay for physical instruction, hould be allowed to attend classes free of charge. It was a vital thing that the physical improvement of the people should be a continuation of the work done by the Board of Education.

TAKING STOCK OF IDEAS

Lord DAWSON said that this question was so big as to transcend in importance and in scope this or that political or social question. A time had arrived when we needed to take stock of our ideas and keep pace with events. It was surely a small view to take to expouse nutrition and depreciate physical education as certain bishops of late had done. Surely it was equally foolish to pretend that the human race could be independent of the laws of sound breeding.

It would be quite wrong, in his opinion, to say that this nation was a deteriorating one; but there were in our midst seeds of deterioration which might quickly be multiplied. In our elementary schools, say in London, the children as a whole were well nourished, well kept, bright, of good colour, and brimful of vitality with better promise of good teeth. Rickets was disappearing. The L.C.C. had indeed brought the physical education of its children to a more advanced stage than those in any other part of the country. On the other hand, adolescents—e.g., boys in the public schools, young men in factories or groups of hikers and territorials—often showed defects in their bodies which bade ill for their future health. It was true that the average boy and girl of to-day were taller and stouter and heavier than those of former generations, but mere bulk of frame was not evidence of fitness. Moreover, the demands on our race were increasing; if this nation was to maintain its leadership the physique of its race must go on improving.

To-day we were reaping not only the advantages of the progress of medical science and the operation of our social services, but also the disadvantages. A high birth-rate and a high death-rate, both adult and infant, brought about a substantial elimination of weaklings. Now that the death-rate was rising steadily, year by year, nature's method had been rendered nugatory. To-day that group of weaklings was not eliminated to anything like the same extent. They were given maintenance and treatment and were even able to marry on their maintenance allowance. We were preventing the death of the unfit as a result of our civilisation, but had not planned any adequate substitute; it seemed to Lord Dawson essential on the one hand to promote the fit, and on the other to take care of the inherently unfit and prevent them from vitiating the race. While securing for the child of average abilities every opportunity in the limited sphere of usefulness for which it was fit, it was important to push forward the better and the best. If, say, at the age of 15 children were tested, and those who passed through the sieve were tested again at 16 or 17, it would be well worth while to spend money in helping forward the filtrate. The testing of the fit at each stage should not be determined just by an examination or a mental test, but should include also a study of bodies and development and of character.

Another aspect of this question was the smaller families of to-day, families of fewer but fitter children. The mothers of those children were as well as, or even better than, those of any previous generation. It was the lower infant death-rate that had accounted in large measure for contraception. It was one thing to have twelve pregnancies and five children reared, and a very different thing to have twelve pregnancies and ten children reared. At the same time, from a national point of view, population must not become too small or our leadership in the world might easily be imperilled.

It was necessary to plan actively for a fit race. The fit citizens must be got to the forefront and leaders of youth must be secured to set the pace. But there was a residue of the inherently unfit which no environment, however favourable, would raise up to the level of good citizens. It was quite proper that these people should be preserved and should be given a kindly simple shelter, but no effort should be made to raise them above their biological level or there was a risk of vitiating the race by the increase of their defects. These defectives, whether they were physical, mental, or moral, if they happened to be the carriers of disease to descendants, or if they were undesirable parents, should be discouraged from reproduction and, where possible, be prevented from undertaking parentage. There was, for example, the tragedy of the bleeders, of hereditary blindness, inherited deformities of the hands, and cyclical insanity. There were 250,000 mental defectives in our community, sufficiently fit to hold their own economically, but unfit as parents. If one parent or two parents were defective the children were liable to be defective to the extent of one-third; and to the extent of one-half children would not be normally minded.

The medical profession were always being exhorted to think in terms of prevention, and they were more and more striving to do so. Why should they not use measures to prevent the birth of unwanted children who were a misery to themselves and to their parents and damaging to the race. In Lord Dawson's experience—and this was certainly true of the Western part of America—these people did not want to be parents; they knew that they were incapable of the responsibility and if they were of a higher standard of intelligence they were terrified of producing bad children for the race. It was only an accident that doctors at the present time had not the power of offering to these poor beings relief from the dangers of parentage. Several hundred years ago an awful practice of getting someone to maim a person to enable him to escape military service was met by a law against maiming which still existed. It was never meant to apply to any skilled profession, but it did. He suggested as a remedy simply that the medical profession be exempted from the terms of that ancient law and that they should be able to extend their powers of preventive treatment in such cases as they were asked to treat and where it was right to proceed. He would plead that in the months to come when this great question was being considered that it should be considered in all its bearings on the destiny of the race.

PLANNING FOR FITNESS

Lord HORDER said that Lord Dawson took a long view, a view that began with eugenic preparation for physical and mental fitness, that planned for a continuation of that fitness, that concentrated on the plastic and trainable period of life, and on the importance of selecting those who could lead and so spread the gospel of fitness. It was a long road, but there was no short cut. What he said should be taken as supplemental to rather than substitutional for the ideal of Lord Dawson. Fitness for living and working, or fitness for fighting if it must be, could never be obtained by physical measures whether educational or recreative. More basic things—food, shelter, air, and leisure—were all essential to that rise in health and morale which was requisite. He trusted that measures already undertaken in promoting these benefits would be intensified and expedited.

Advertisement of what this nation had itself done in these directions would be wholesome for our self-respect and would be salutary reading for some other nations. But much remained to be done; there was need for more coöperation between Government departments. He preferred the word "food" to "nutrition." As one who was anxious to avoid the delays that exasperated he would say: "Look after the accessibility of food and nutrition will look after itself." He would like to see more coöperation on the question of food and its distribution between the Ministries of Health and of Agriculture, the Board of Trade, and why not the Ministry of Transport?

They could not really plan for improved fitness; even the best doctor could not make his patients healthy, and in Russia were to be seen some of the effects upon a nation of being more planned against than planning. He was not decrying forethought; he welcomed the promised Factories Bill. But his own lead would be that the Government should speed up all those social services upon the results of which depended the health and happiness of the people. Methods and the means of physical training might even emerge naturally, given health and contentment. Let the Government stimulate and subsidise existing institutions that centralised physical training and physical education, notably the Central Council of Recreative Physical Training. Finally, he hoped that they would not be regimented towards this object. If the people of Britain were given the modest requirements of security of sustenance their sturdy common-sense would do the rest. The word "democracy" had been debased but if he dare use it he would remind their lordships that democracy also advanced on its stomach.

THE FACTOR OF UNDER-NOURISHMENT

The Archbishop of Canterbury wished to call attention to the danger lest the standard of nutrition should fall short of the bodily standard necessary for profiting by physical exercise or training. A standard of nutrition adequate for the ordinary school life was different from one adequate to withstand the strain of physical exercise, to say nothing of the extra hunger which exercise created. It was of great importance that children especially should be subjected to careful medical inspection before being put through physical exercises. Adolescents who had left school and needed even greater opportunities for physical training and recreation had not the advantage of receiving free meals or milk; and some of those most eager for physical training might not be sufficiently nourished to stand the strain. He hoped that further and fuller consideration would be given to a considered policy of food production in the country, food distribution, and not less food preparation.

The Earl of Listowel was less optimistic than Lord Dawson about the prospects of scientific breeding as applied to human beings. He believed that we had not yet sufficient accurate knowledge of human heredity to be able to tell what people were best fitted to bring children into the world; geniuses had very often been born of very poor stock. It would be extremely dangerous if we were to adopt physical fitness as the criterion of fitness for parenthood. If the Government intended to face up to the problem of physical debility they must detect the root cause of this low standard of physical well-being and strike at that. And the root cause was surely malnutrition or undernourishment. He was not satisfied that the mere increase of facilities for physical training and recreation and sports would diminish very appreciably the appalling incidence of physical defects. Unless the Government were prepared to expand the social services in a bolder and more generous way the country would be faced for many years to come with a problem of profound anxiety.

THE GOVERNMENT'S INTENTIONS

Earl De La Warr, Under-Secretary of State for the Colonies, replying for the Government, said that the House was apparently agreed that there was need for a drastic attack on the health problems of this country, but that some progress had been made in the past and that there were at least some sound foundations on which to build. There was complete agreement that any policy brought forward must be comprehensive; if they followed only those who saw no problems but that of nutrition, or on the other, those who were interested mainly in physical training of a particular character, they were bound to have an incomplete policy. They had at a later stage to consider the fundamental points made by Lord Dawson. They were a long way from action on any of these points, because much more knowledge was required, but none the less these were fundamental questions affecting the future of our race.

Now for the first time there was going to be a real central comprehensive drive in all the fields of health at the same time. The Government's intention was to mobilise voluntary effort plus the local authorities and help and encourage them to give facilities for the promotion of greater health. It might be that legislation would be necessary for certain improvements of machinery and that aid of a financial character would have to be considered, but the basis of the scheme would rest on the local authorities and the existing voluntary organisations. They were convinced that if only they could provide playing fields and swimming pools and the right type of instructor they would be used. And on the subject of nutrition they were convinced that if the right food and the right knowledge were available immense strides could be made. The Government recognised that no health policy could be effective unless it was comprehensive, and proposed to deal further on the milk-in-schools scheme and with the question of nutrition. The Government intended to drive forward with all the force and imagination at their command.

Text of Scottish Midwives Bill

The Maternity Services (Scotland) Bill, of which the text has now been issued, places on every local authority the duty of providing a home service of trained midwives with liberty to compensate midwives who are too old or infirm to enter the service. Additional expenditure for the next five years is to be met by an Exchequer grant on a "unit" basis. The local authority will be entitled to recover fees in accordance with a scale to be approved by the Department of Health. Women may authorise payment to the local authority out of their maternity benefit under the National Health Insurance scheme.

QUESTION TIME

MONDAY, NOV. 16TH

Superannuation of Local Government Officers

Sir Henry Jackson asked the Minister of Health whether he could indicate the scope of the proposed Bill to deal with the superannuation of local government officers.—Mr. R. S. Hudson replied: The Bill will be based generally on the recommendations of the Departmental Committee of 1927. The main object will be to secure that provision is made by all local authorities for the superannuation of their administrative, professional, and clerical staff, in order to remove the bar to mobility to which the absence of a uniform superannuation system gives rise and which the committee unanimously regarded as unfavourable to the efficiency of the Local Government Service. These considerations do not apply with the same force to other members of the staffs of local authorities and it is proposed that the superannuation of these employees should remain a matter for the discretion of each local authority.

Recovery of Cost of Treatment of Infectious Diseases

Mr. Thomas Williams asked the Minister of Health whether he was aware that some local authorities attempted to recover from patients the cost of their treatment in isolation hospitals for infectious diseases; by what authority were such costs recovered from local or other patients; whether he or his predecessors had made any pronouncement on the desirability or otherwise of recovering such costs; and whether, in view of the present practice of some authorities, he would make a pronouncement as to the undesirability of recovering such costs.—Mr. R. S. Hudson, Parliamentary Secretary to the Ministry of Health, replied: The answer to the first part of the question is in the affirmative. The authority under which the costs of isolation hospital treatment are recovered by local authorities from patients is section 132 of the Public Health Act, 1875. No general pronouncement has been made by my right hon. friend or his predecessors regarding the desirability or undesirability of recovering such costs, but, in response to inquiries from individual local authorities, my right hon. friend has suggested that discretion should be exercised as undue insistence might tend to defeat the objects for which isolation hospitals are provided. My right hon. friend does not think that he would be justified in making any such general pronouncement as is suggested in the last part of the question.

Medical Examination of Spanish Immigrants

Mr. Gallacher asked the Minister of Health whether it was upon instructions given by him to the immigration officer at Dover that a party of 14 Spanish citizens, travelling from Barcelona and passing in transit through England, were held for a medical examination; what was the purpose of so doing; and whether all persons sympathising with the Burgos insurgents were also subjected to such an examination when they visit this country.—Mr. R. S. Hudson replied: Advice was recently given by my Department to the medical officers of health of Dover and of other ports and airports that, in view of the risk of the introduction of infectious disease into this country from Spain under present conditions, all travellers arriving at those ports who were known to have come from that country shall be medically inspected. The members of the party in question were accordingly referred to the medical inspector of aliens. It was ascertained that they did not intend to stay in this country but were in transit to Russia. They were consequently not medically examined, but were merely subjected to the ordinary routine medical inspection.

Silicosis and Asbestosis

Mr. Ellis Smith asked the Home Secretary if it was proposed to take steps to include silicosis and asbestosis in the industrial disease provisions of the Workmen's Compensation Acts.—Mr. Geoffrey Lloyd, Under-Secretary, Home Office, replied: No, Sir. Special provisions were enacted by Parliament to enable compensation to be given for these diseases because the ordinary industrial disease provisions were not considered appropriate; and my right hon. friend knows of no reason for departing from the present arrangements.

Mr. Ellis Smith asked the Home Secretary if he would arrange for an exhibition to be held in Stoke-on-Trent of the section in the Industrial Museum that dealt with silicosis.—Mr. Geoffrey Lloyd replied: My right hon. friend is fully alive to the advantages of local exhibitions, but he is doubtful whether the hon. Member's object would be best attained in the way he suggests. I am advised that the section in question, though it contains, of course, some exhibits dealing with silicosis and the potteries, is designed to afford a general illustration of the conditions giving rise to silicosis and the precautions to be observed, that would not be specially appropriate at Stoke. As the hon. Member is aware, the Home Office arranged for a special exhibition some years ago in connexion with the Wedgwood Centenary Exhibition and it would probably be more useful to arrange for some similar exhibition at Stoke at the first suitable opportunity.

Mr. Thomas Williams asked the Home Secretary who was responsible for appointing members of the area medical boards to deal with silicosis cases; what special qualifications they possessed; the terms of their appointment; and whether any member of these medical boards could act for employers in other compensation cases.—Mr. Geoffrey Lloyd replied: The area panels of the Medical Board are appointed by the Secretary of State. They are whole time salaried officers and are not free to act for employers or workmen. In a few districts in which cases occasionally arise and which are not conveniently served by the panels, special doctors are appointed to act in conjunction with a whole time member when necessary. The terms of appointment of these doctors would not preclude their acting for an employer or workman in some compensation case, but a report or certificate under the scheme cannot be issued except with the authority of at least two members of the Board. The special qualifications of the members consist partly of their previous experience of respiratory disease, in the light of which they are appointed, and partly in the knowledge and experience gained by constant examinations under the schemes in consultation with their colleagues.

THURSDAY, NOV. 12TH

Workmen's Compensation and Unemployment Relief

Mr. Oliver asked the Minister of Labour whether lump sum settlements paid in respect of accidents under the Workmen's Compensation Acts were subjected to assessments for the purpose of computing the family income under the means test, or whether such sums were treated differently from other moneys not so obtained.—Mr. Ernest Brown replied: I am informed by the Unemployment Assistance Board that one-half of any lump sum paid to an applicant or a member of his household in commutation of weekly payments by way of workmen's compensation will be regarded as set off against the special needs or personal requirements of the owner. The remaining half is dealt with under the regulations in the same way as other capital assets.

Report on Miner's Nystagmus

Mr. Thomas Williams asked the Home Secretary when the report of the Departmental Committee on Miner's Nystagmus will be available.—Sir John Simon replied: I understand that the committee have almost finished taking evidence and have commenced consideration of their report. I am afraid, however, that it is not possible to say at present when the report will be completed. The hon. Member will appreciate that the inquiry is not limited to miner's nystagmus, but covers also the important questions of the general medical procedure and arrangements under the Acts and the working of existing provisions and practice in regard to lump sum settlements.

Anti-poison Gas Instruction

Mr. Mathers asked the Home Secretary what action had been taken with university authorities in general and Edinburgh in particular, in relation to anti-poison-gas instruction; whether this had been included in the curriculum as a compulsory subject by his order; what authority he had for such action; and whether it was intended to impose any penalty upon students who objected to take such a subject as part of their studies in the public health course.—Mr. Geoffrey Lloyd, Under-Secretary, Home Office, replied: My right. hon. friend has appointed a number of medical instructors in anti-gas precautions who, amongst their duties, will give instruction to medical students in accordance with arrangements which have been made with the authorities of universities and medical schools. The question whether this subject should be taught on a compulsory or voluntary basis is a matter entirely for the authorities responsible for medical education.

Mr. MATHERS: Are the hon. gentleman and the Home Secretary aware that apart from those students who think that to have this instruction is to give way to the idea that war is inevitable, there is a strong body of opinion that they are being in this way included in what may be described as the Government's military machine and that it is on that ground that the objection is raised to the compulsory nature of the instruction?

Vice-Admiral TAYLOR: Is it not in the public interest that such instruction should take place generally throughout the country?

No further answer was given.

Replying to Sir A. KNOX, Mr. LLOYD said that substantial stocks of components of a civilian gas respirator had already been produced, and they expected to get a large-scale assembly by next month. They expected the production of the Government factory to be running smoothly at the rate of 2,000,000 per month very shortly.

Card-room Workers and Respiratory Disease

Mr. SUTCLIFFE asked the Home Secretary if he could make any statement with regard to the position of the Home Office in respect of card-room dust, as a result of the recent deputation representing the card-room workers' amalgamation.—Sir JOHN SIMON replied: Yes, Sir. I have decided to set up a committee to explore the question whether a workable scheme can be devised for providing some compensation for card-room and certain other workers disabled by respiratory illness as indicated in the report of the Committee on Dust in Card-rooms.

Midwives Act: Local Supervising Authorities

Mr. GEORGE GRIFFITHS asked the Minister of Health if he would give the names of the local authorities which were now local supervising authorities under the Midwives Acts.—Sir KINGSLEY-WOOD replied: The local supervising authorities in England and Wales for the purposes of the Midwives Acts are the county councils, the county borough councils, and the councils of the following non-county boroughs or urban districts:—

Barking
Bedford
Bromley
Cambridge
Cheltenham
Chesterfield
Colchester
Darwen
Ealing
Eccles
Edmonton
Gillingham
Guildford
Harrow
Hove
Ilford
Leigh
Leyton
Lowestoft
Luton
Nuneaton
Poole
Scarborough
Stockton-on-Tees
Stretford
Swindon
Torquay
Tottenham
Walthamstow
Weymouth and Melcombe Regis
Willesden
Wimbledon

Major HILLS asked the Minister of Health in how many cases he had refused applications from non-county boroughs for orders authorising the borough council to become the local supervising authority under the Midwives Acts, 1902–26, and how many such applications were supported by the county council; how many applications had been granted; what were the considerations that weighed with him in dealing with such applications; and whether he proposed to adhere to his promise that he would give sympathetic consideration to applications from the smaller local authorities to supervise midwifery in their areas.—Sir KINGSLEY-WOOD replied: Since the passing of the Local Government Act, 1929, applications of this kind have been submitted to my Department by the councils of 69 non-county boroughs. Forty-one have been refused, of which six were supported by the county council concerned, and 28 have been granted. In dealing with these applications the most important factor to which I have given consideration since the Midwives Act, 1936, came into operation is the number of whole-time midwives required for domiciliary midwifery in the non-county boroughs concerned. I can assure my hon. friend that the promise I made during the passage of the Midwives Bill will be adhered to and that these applications will be granted wherever the circumstances justify the setting up of a new local supervising authority.

Compulsory Pasteurisation of Milk

Mr. ROBERT MORRISON asked the Minister of Health whether, in view of the recent epidemic in Bournemouth which involved 500 cases of infection and 40 deaths, he proposed to take steps to make the pasteurisation of milk compulsory.—Sir KINGSLEY WOOD replied: I am of course fully aware of the facts of this case, but I cannot undertake to introduce legislation on the subject at the present time.

Sale of Fresh Skimmed Milk

Mr. CHARLES TAYLOR asked the Minister of Agriculture if he would make representations to the Milk Marketing Board so that the sale of fresh skimmed milk be permitted in this country, in view of the fact that large sales of foreign skimmed milk in tins were still permissible.—Mr. MORRISON replied: The Milk Marketing Board have not prohibited the sale of fresh skimmed milk. I understand that any person may purchase whole milk at the regional price, separate the cream, and sell the resulting skimmed milk in liquid form; but in such cases the Board are not prepared to allow to the purchaser a manufacturing rebate.

Milk for Nursing and Expectant Mothers

Mr. DREWE asked the Minister of Agriculture what progress had been made with the scheme for the supply of milk to nursing and expectant mothers and to children under school age in the Rhondda Valley at the reduced price of 2*d.* a pint.—Mr. MORRISON replied: The figures so far available indicate that satisfactory progress is being made with the scheme which my right. hon. friend who preceded me at the Ministry was able to announce on July 29th last. Up to Nov. 7th applications to participate in the scheme had been received in respect of 3673 persons, including 303 nursing mothers, 339 expectant mothers and 3031 children under five. Approximately 82,000 pints of milk were supplied under the scheme in October. I understand that the Milk Marketing Board intend to make a special survey of the working of the scheme at the end of this year, when it is hoped that further information will be available.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 7TH, 1936

Notifications.—The following cases of infectious disease were notified during the week: Small pox, 0; scarlet fever, 2347; diphtheria, 1265; enteric fever, 19; pneumonia (primary or influenzal), 713; puerperal fever, 36; puerperal pyrexia, 108; cerebro-spinal fever, 10; acute poliomyelitis, 14; encephalitis lethargica, 6; dysentery, 14; ophthalmia neonatorum, 83. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Nov. 13th was 3102, which included: Scarlet fever, 1167; diphtheria, 925; measles, 22; whooping-cough, 332; puerperal fever, 14 mothers (plus 9 babies); encephalitis lethargica, 286; poliomyelitis, 3. At St. Margaret's Hospital there were 15 babies (plus 5 mothers) with ophthalmia neonatorum.

Deaths.—In 122 great towns, including London, there was no death from small-pox, 1 (0) from enteric fever, 6 (0) from measles, 2 (1) from scarlet fever, 13 (1) from whooping-cough, 32 (2) from diphtheria, 32 (20) from diarrhœa and enteritis under two years, and 35 (11) from influenza. The figures in parentheses are those for London itself.

Bournemouth reported the only fatal case of enteric fever. [illegible] and Stoke-on-Trent each had 3 deaths from [illegible] 3 from whooping-cough. Fatal cases [illegible] orted from 23 great towns; Liverpool 3.

The number of stillbirths notified during the week was 269 (corresponding to a rate of 40 per 1000 total births), including 39 in London.

KING'S COLLEGE HOSPITAL.—The Duke and Duchess of York visited this hospital on Nov. 4th and the Duchess received purses containing over £3000 towards the £34,000 which is required to complete the new nurses' home. Renovations to the existing quarters will cost a further £3000, and £7000 is also needed for the maids' floor.

MEDICAL NEWS

University of Cambridge

On Nov. 13th the following degrees were conferred :—

M.D.—B. P. Harris and B. W. S. Mackenzie.

M.B., B.Chir.—J. W. D. Bull, J. M. Barnes, and G. T. Pitts.

M.B.—J. S. Ross and S. F. L. Dahne.

University of London

Mr. Girling Ball has been elected dean of the faculty of medicine of the University for the period 1936–38.

University of Adelaide

Dr. Frank Goldby, lecturer in anatomy at the University of Cambridge, has been appointed professor of anatomy and histology at this university.

University of Sheffield

The following external examiners have been appointed: anatomy, Prof. D. M. Blair; physiology, Prof. H. S. Raper, F.R.S.; medicine and therapeutics, Prof. J. W. McNee; surgery, Prof. G. E. Gask; pathology and bacteriology, Prof. J. H. Dible; pharmacology, Prof. A. D. Macdonald; obstetrics and gynæcology, Prof. D. Dougal; public health, Prof. J. J. Jervis; and forensic medicine, Prof. J. Glaister.

Royal College of Surgeons of England

A meeting of the council was held on Nov. 12th with Sir Cuthbert Wallace, the president, in the chair. It was reported that at the recent primary examination for the fellowship 199 candidates presented themselves, of whom 67 were successful. Arrangements have now been made for the laboratories of the Imperial Cancer Research Fund to be removed from Queen-square to Mill Hill. Mr. G. M. Hills, B.Sc., of the Middlesex Hospital, had been awarded a Mackenzie-Mackinnon research fellowship. The museum will be closed for a period in connexion with the reconstruction of the research laboratories. Permission was granted to the Society of British Neurological Surgeons to hold its next meeting in London in January at the College.

A diploma of fellowship was granted to R. K. Magee of the University of Toronto and St. Bartholomew's Hospital, and diplomas of membership to the candidates named on p. 1126 of our issue of Nov. 7th as receiving the L.R.C.P. Diplomas in public health and in child health were also granted jointly with the Royal College of Physicians to the candidates mentioned on the same page.

At the recent primary examination for the fellowship of the College, the following candidates were successful in the subjects of anatomy and physiology :—

J. R. Armstrong, M.B. Belf., Middlesex and Univ. Coll.; B. Bandyopadhyaya, M.B. Calcutta, Univ. Coll. and Middlesex; J. R. Belcher, St. Thos.; A. D. Bell, Guy's; A. J. S. Bell Tawse, Camb., Univ. Coll., and Middlesex; R. Bewick, M.B. Glasg., F.R.C.S. Edin., King's Coll.; H. E. Blake, B.Chir. Camb., Univ. Coll.; H. A. C. Chalmers, King's Coll. and Middlesex; J. L. Collis, M.B. Birm., Middlesex; D. M. Cooper, M.B. Lond., Oxon. and St. Thos.; J. O. Corbin, M.B. Adelaide, Univ. Coll. and Middlesex; J. V. Crawford, Lond.; J. K. Cunninghame, M.B. N.Z., Middlesex and Univ. Coll.; A. W. Douglas, M.B. N.Z., Middlesex and Univ. Coll.; F. L. Dyson, Univ. Coll.; A. B. Evans, L.R.C.P. Lond., Camb., Middlesex, and St. Mary's; H. Freeman, L.R.C.P. Lond., St. Mary's and Middlesex; F. N. Glover, Guy's; J. A. S. Green, St. Thos.; A. D. M. Greenfield, St. Mary's; D. W. Guthrie, M.B. N.Z., Middlesex and Univ. Coll.; H. Haggag, M.D. Berlin, Cairo, St. Bart.'s, and Middlesex; H. G. Hanley, L.R.C.P. Lond., Liverp.; B. J. Harries, Univ. Coll. and Middlesex; P. F. J. Hickinbotham, Birm.; J. H. Hicks, Birm.; F. D. Hindmarsh, Durham; J. W. Horsley, M.B. N.Z., Middlesex; A. Innes, B.Chir. Camb., St. Bart.'s and Univ. Coll.; I. M. Jackson, Camb. and Lond.; J. A. R. Johnson, M.B. Birm., Middlesex; A. R. K. Kelly, M.B. Melb., Univ. Coll. and Middlesex; J. Lannon, M.B. W'rand., Middlesex and Univ. Coll.; J. K. McCollum, M.B. Belf., Middlesex; J. MacHale, Dublin, St. Bart.'s, and Middlesex; E. W. McMechan, M.B. *Belf.*; J. W. Magladery, *M.D.* Toronto, Oxon.; M. Makeen, M.B. Cairo, Middlesex and Lond.; B. T. H. Marteinsson, M.D. Manitoba, Middlesex; G. A. Matthews, Middlesex and Univ. Coll.; G. M. Mes, Cape and Lond., Arts Amsterdam; N. A. Neville, Oxon. and Guy's; E. D. E. E. O'Brien, M.B. Melb., Univ. Coll. and Middlesex; R. Orgias, M.B. N.Z., Middlesex and Univ. Coll.; L. I. Parton, M.B. N.Z.; R. M. Paton, M.B. Lond., St. Thos.; E. L. Patterson, M.B. Manch.; F. R. Philps, Univ. Coll.; T. G. Pritchard, Guy's; W. L. L. Rees, Univ. Coll., Cardiff; J. E. Richardson, Lond.; P. Smith, St. Thos.; C. F. V. Smout, M.B. Birm.; M. Sofer-Schreiber, M.B. Sydney, Univ. Coll. and Middlesex; I. Spiro, L.R.C.P. Lond., Univ. Coll. and St. Mary's; B. E. C. Stanley, St. Mary's; M. G. Talwalkar, M.B. Bombay, St. Bart.'s; L. J. Temple, Univ. Coll.; R. G. Thomas, Oxon. and Guy's; R. N. Traquair, M.B. Edin., Camb. and Univ. Coll.; N. M. Vora, M.B. Bombay, Lond.; J. S. H. Wade, Camb. and Univ. Coll.; C. F. H. Wiessner, Camb. and Middlesex; A. F. Williams, Manch.; A. E. Williams, M.B. Wales, Cardiff; R. E. O. Williams, Univ. Coll.; and S. C. Williams, M.B. Sydney, Middlesex and Univ. Coll.

British Health Resorts Association

Lord Meston, the president, will take the chair at the annual meeting of this association to be held at the Institute of Hygiene, 28, Portland-place, London, W., at 4.30 P.M., on Friday next, Nov. 27th.

Pharmaceutical Society of Great Britain

A meeting of this society will be held at 8.30 P.M., on Tuesday, Dec. 1st, at University College, London, W.C., at which Mr. J. Davidson Pratt, secretary and general *manager of the Association of British Chemical Manu*facturers, will speak on the defence of the civil population against gas.

THE air-raid precautions department of the Home Office have moved to their new premises in Horseferry House, Thorney-street, London, S.W.1, and should be addressed there in future.

A Medical Officer's Portrait

A portrait of Dr. James Gairdner has been presented to the town council of Crieff by an anonymous donor. Dr. Gairdner has been medical officer to the burgh since 1880.

Medical Congress in Vienna

In celebration of its centenary the Gesellschaft der Aerzte in Wien is holding a post-graduate course at the University of Vienna from May 19th to 29th. *A detailed* programme will be issued shortly by the Kursbüro der Wiener medizinischen Fakultät, Allgemeines Krankenhaus, Alserstrasse 4, Vienna IX.

Kensington Medical Society

Dr. G. Roche Lynch is speaking at the first meeting of this society which will be held at St. Mary Abbots Hospital, Marloes-road, W. An announcement will be found in our Medical Diary, and Dr. B. Barling, who is the hon. secretary of the society, may be addressed at the hospital.

Demonstrations of Contraceptive Technique

On Wednesday, Dec. 2nd, at 2.30 P.M., at the clinic of the Society for Constructive Birth Control, a practical demonstration of the technique of the use of a variety of contraceptive methods will be given by Mrs. Marie Stopes, D.Sc., and Dr. Evelyn Fisher. Medical practitioners and senior students may apply for tickets to the hon. secretary of the society, 108, Whitfield-street, London, W.1.

London Jewish Hospital Medical Society

The annual dinner of this society will take place on *Sunday, Dec. 6th*, at the Trocadero Restaurant, when Mr. Arnold Sorsby, the president, will be in the chair. Lord Snell will be the principal guest, and the Marquess of Reading will propose the toast in his honour. The hon. general secretary, Dr. Max Sorsby, may be addressed at the London Jewish Hospital, Stepney Green, E.1.

Research Fellowships in Tropical Medicine

The Medical Research Council, on the advice of their Tropical Medical Research Committee, have awarded senior fellowships to Dr. Frederick Murgatroyd, lecturer in the Liverpool School of Tropical Medicine, and Dr. Cecil Hackett, recently engaged in investigations in the Northern Territory of Australia. They are tenable for three years, for investigations to be made mainly in the tropics. Dr. Murgatroyd will work in West Africa on the chemotherapeutic treatment of trypanosomiasis, and Dr. Hackett in East Africa on the pathology and clinical manifestations of yaws. Junior fellowships have been awarded to Dr. G. B. Ludlam, clinical assistant at the Sheffield Royal Hospital, and Dr. J. N. Strauss, formerly house physician at the Hospital for Tropical Diseases, London.

Sir John Davidson, M.P., has accepted the presidency of the Hospital for Epilepsy and Paralysis, Maida Vale.

Royal Northern Hospital, London

At the dinner held in connexion with this hospital, donations amounting to nearly £33,000 in addition to £52,500 previously subscribed were announced.

Fellowship of Medicine and Post-Graduate Medical Association

Courses for M.R.C.P. candidates include chest diseases at the Brompton Hospital (two evenings weekly at 5 P.M. from Dec. 9th to Jan. 8th); chest and heart diseases at the City of London Hospital, Victoria Park (two evenings weekly, at 6 P.M., from Dec. 7th to Jan. 8th). Sir Walter Langdon-Brown will give the first of a series of lectures of endocrinology on Monday, Nov. 23rd, at 8.30 P.M., at the National Temperance Hospital. He will deal with the integration of the endocrine system.

Manchester Hospitals and Air Raid Precautions

At the request of the city council the Manchester joint hospitals advisory board has considered the use of hospitals in connexion with the council's scheme for service in case of air raid. The joint board has now approved in principle a scheme for regarding the voluntary hospitals in the centre of the city as casualty clearance stations to which injured persons should be taken in the first instance. Should they require continued hospital treatment they would be moved out to the base hospitals provided at Booth Hall, Crumpsall and Withington hospitals, supplemented by the use of school premises at Moston and Wythenshawe. The various special hospitals are asked to provide the equipment for adequate first-aid treatment when used as clearing stations, and at least one portion of every hospital should be immune from the infiltration of gases. The hospitals council has been asked to appoint members to confer with the subcommittee of the city council on details of organisation and finance.

Vacancies

For further information refer to the advertisement columns

Aberdeen Royal Infirmary.—Hon. Jun. Asst. Surgeon for Ear, Nose, and Throat Dept.

All Saints' Hospital, Austral-street, West-square, S.E.—Hon. Surg. Reg. Also Res. H.S., at rate of £100.

Ayr County Council.—Obstetrician, £700.

Bath, Royal United Hospital.—Res. O., £150.

Bedford County Hospital.—Second H.S., at rate of £150.

Belfast, Royal Maternity Hospital.—Res. H.S., at rate of £100.

Birmingham, Selly Oak Hospital.—Res. Ear, Nose, and Throat Surgeon, £700. Also Jun. M.O.'s, each at rate of £200.

Board of Control.—Commissioner, £847.

Brighton, Royal Alexandra Hospital for Sick Children.—H.S., £120.

Brighton, Royal Sussex County Hospital.—H.S. and Cas. H.S., £150 and £120 respectively. Also Hon. Med. Reg.

British Postgraduate Medical School, Ducane-road, W.—First Asst. in Obstet. Dept., £300–£500.

Cardiff Royal Infirmary and Welsh [illegible] *ine.*—Hon. Dermatologist and M.C [illegible]), &c.

Central London Throat, Nose, an [illegible] *Inn-road, W.C.*—Res. H.S., at rate of £75.

Chelsea Hospital for Women, Arthur-street, S.W.—Jun. H.S., at rate of £100.

Chester, County Mental Hospital.—Jun. Asst. M.O., £350.

City of London Maternity Hospital, City-road, E.C.—Jun. Res. M.O., at rate of £80.

Croydon General Hospital.—Hon. Asst. Surgeon to Ear, Nose, and Throat Dept.

Dreadnought Hospital, Greenwich, S.E.—Receiving Room Officer, at rate of £200. Also H.P. and H.S., each at rate of £110.

Durham County Council.—Asst. Welfare M.O., £500.

Eastbourne, Royal Eye Hospital, Pevensey-road.—H.S., £100.

East Ham Memorial Hospital, Shrewsbury-road, E.—H.S. to Spec. Depts., and Cas. O., at rate of £120.

Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—H.P., First and Second H.S., also Obstet. Asst., each at rate of £50.

Gloucestershire County Council.—M.O., £800.

Hampstead General and N.W. London Hospital, Haverstock-hill, N.W.—H.S. Also Cas. M.O. and Cas. Surg. O. for Out-Patient Dept., each at rate of £100.

Hertford County Hospital.—Hon. Asst. Ophth. Surgeon.

Hospital for Tropical Diseases, Gordon-street, W.C.—H.P., at rate of £120.

Hospital for Women, Soho-square, W.—Res. M.O., at rate of £100.

Hospital of St. John and St. Elizabeth, 60, Grove End-road, N.W.—Anæsthetist.

Indian Medical Service.—Commissions.

Institute of Medical Psychology, Malet-place, W.C.—Diagnostic Physician.

Isleworth, West Middlesex County Hospital.—Asst. M.O., £400.

Kent County.—Asst. Pathologist, £700.

L.C.C.—Part-time M.O., at rate of £260.

Leicester City General Hospital.—Res. M.O., at rate of £300.

London University.—Geoffrey Duveen Studentship, £450.

Manchester Hospital for Consumption and Diseases of the Throat and Chest.—Res. Surg. O. for Ear, Nose, and Throat Dept., £200.

Manchester Royal Eye Hospital.—Jun. H.S., £120.

Manor House Hospital, Golders Green, N.W.—Jun. M.O., £200.

Marie Curie Hospital, 2, Fitzjohn's-avenue, N.W.—Res. M.O., £100.

[illegible] *Hospital.*—Res. H.P., at rate of [illegible] *nt* [illegible] *il I* [illegible] ar, Nose, and Throat Dept.

Preston and County of Lancaster Royal Infirmary.—Asst. Pathologist, £650.

Prince of Wales's General Hospital, N.—Hon. Clin. Assts. to Spec. Depts.

Princess Elizabeth of York Hospital for Children, Shadwell, E.—Res. M.O., £200. Also H.S. and Cas. O., each at rate of £125.

Queen Mary's Hospital for the East End, E.—Hon. Asst. Phys. for Children's Dept. Res. M.O. and two Cas. and Out-patients O.'s, each at rate of £150. Also H.S. and H.P.'s to Spec. Depts., each at rate of £120.

Queen's Hospital for Children, Hackney-road, E.—H.P. and Cas. O., each at rate of £100.

Redhill, Surrey, Royal Earlswood Institution.—Jun. Asst. M.O., at rate of £250.

Rochdale Infirmary and Dispensary.—H.P., £150.

Rochester, St. Bartholomew's Hospital.—Cas. O., at rate of £150.

Royal Free Hospital, Gray's Inn-road, W.C.—Half-time Reg. for Ear, Nose, and Throat Dept., first H.S., Med. and Surg. Regs., each £200, Res. Cas. O., at rate of £150. Dist. Obstet. Asst. [illegible] each at rate of £100. Also Res. [illegible] d Gyn. Unit, at rate of £75.

Royal Wa [illegible] *and Women, Waterloo-road, S.E.*– [illegible] lso Hon. Surg. Reg. and Hon. Clin. Asst.

St. Mary's Hospital for Women and Children, Plaistow, E.—Hon. Asst. Physician.

St. Mary's Hospital, W.—Med. Reg., £200. Also Cas. H.P., at rate of £150.

St. Peter's Hospital for Stone, Henrietta-street, W.C.—4th Anæsthetist, £25.

Seamen's Hospital Society, Greenwich.—H.S. for Tilbury Hospital, at rate of £140.

Sheffield Royal Hospital.—Whole-time Clin. Asst. to Ear, Nose, and Throat Dept., £300.

Southampton, Royal South Hants Hospital.—Cas. O., H.P., and two H.S.'s, each at rate of £150.

Sunderland Royal Infirmary.—Two H.S.'s and H.P., each £120.

Weir Hospital, Grove-road, Balham, S.W.—Sen. Res. M.O., £200.

West London Hospital, Hammersmith-road, W.—Cas. O., £250. Also H.P. and two H.S.'s, each at rate of £100.

Westminster Hospital, Broad Sanctuary, S.W.—Hon. Clin. Asst. to Gynæcological Dept. Also Asst. Surgeon.

Wickford, Essex, Runwell Hospital for Mental and Nervous Disorders.—Sen. Physician, £550.

Willesden General Hospital, Harlesden-road, N.W.—Med. Reg., at rate of £50.

Wolverhampton and Midland Counties Eye Infirmary.—H.S., £150.

The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Whitstable (Kent), Keynsham (Gloucester), and Market Deeping (Lincoln).

Births, Marriages, and Deaths

BIRTHS

MACLEOD.—On Nov. 13th, to Lesley, wife of Douglas MacLeod, F.R.C.S. Eng., of 18 Harley-street—a son.

SNELL.—On Nov. 9th, at Kingsley Way, N., the wife of Dr. W. E. Snell, of a son.

WILSON.—On Nov. 15th, at Harrow-on-the-Hill, the wife of Dr. Henry Wilson, of a daughter.

MARRIAGES

KELLNER—HAWES.—On Nov. 12th, at Kensington, Andrew Kellner, M.D., to Florence Dorothy Hawes, M.R.C.S., daughter of Mr. Spencer Hawes, of Reading.

MERER—MACINNES.—On Nov. 7th, at Christ Church, Hampstead, Dudley Merer, of Wembley [illegible] M.B., B.S. Palestine, of St. Luke's [illegible]

WILKINS—WITHERS.—On Nov. 14th, [illegible] Church, Walter Wilkins, M.R.C.S., [illegible] of West Derby, Liverpool.

DEATHS

CONNOR.—On Nov. 16th, very suddenly, at Uplands, Hythe, Kent, Col. John Colpoys Connor, C.M.G., late R.A.M.C., aged 69.

DOBIE.—On Nov. 13th, at Chester, Herbert Dobie, M.B.E., M.D. Edin., aged 71 years.

NORTON.—On Nov. 12th, at Fowey, Cornwall, John Joseph Norton, L.R.C.S.I., aged 79 years.

SOPER.—On Nov. 12th, at Anerley-road, S.E., Arthur Walrond Soper, M.R.C.S. Eng.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths

Medical Diary

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, Nov. 23rd.

Odontology. 8 P.M. Mr. A. T. Marston: Observations on the Piltdown Canine. Mr. W. E. Herbert and Mr. A. R. F. Thompson: Research on Gold Casting.

TUESDAY.

Medicine. 5 P.M. Dr. Mervyn Gordon, F.R.S.: The Ætiology and Diagnosis of Lymphadenoma. Dr. E. C. Warner and Dr. G. E. Vilvandré will also speak.

WEDNESDAY.

Comparative Medicine. 5 P.M. Dr. P. H. Manson-Bahr: Comparative Medicine and its Relation to the Study of Tropical Disease. Dr. G. M. Findlay and Dr. F. O. MacCallum: Immune Bodies to Yellow Fever in the Blood of African Animals. Mr. E. L. Taylor: An Example of the Value of Morphology in Medico-biological Investigation.

THURSDAY.

Urology. 8.30 P.M. 1. Tumour of the Kidney. 2–3. Tumours in the Ureter. 4. Non-malignant Tumours Necessitating Nephrectomy. 5. Papillomata of the Kidney and Ureter due to Bilharziasis. 6. Papillomata of the Kidney and Ureter. 7. Renal Growths. 8. Adenoma of Kidney. 9. Adenocarcinomata of Kidney. 10. Kidney Showing (*a*) Calculous Pyonephrosis, (*b*) Papilloma and Carcinoma, (*c*) Massive Hæmorrhage. 11. Grawitz Tumour of Kidney of Unusually Low Malignancy. 12. Papilloma of Ureter, Showing also Intussusception. 13–15. Renal Tumours Successfully Removed from Females aged 3 months, 4½ years, and 14 years.

FRIDAY.

Disease in Children. 5 P.M. (Cases at 4.30 P.M.) Dr. R. H. Dobbs (introduced by Mr. Harold Edwards): 1. Acute Duodenal Obstruction in a Child of Nine Months; Recovery following Operation.

Epidemiology and State Medicine. 8.15 P.M. Dr. L. P. Lockhart: Industrial Influences on the Development of State Medicine.

ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION.

WEDNESDAY, Nov. 25th.—3 P.M. (1, Wimpole-street, W.), Sir Walter Langdon-Brown: The Biology of Social Life. (Maudsley lecture.)

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, W.

MONDAY, Nov. 23rd.—8 P.M., clinical evening.

MEDICO-LEGAL SOCIETY.

THURSDAY, Nov. 26th.—8.30 P.M. (Manson House, 26, Portland-place, W.), Dr. W. G. Barnard: The Medico-Legal Institute.

SOCIETY OF MEDICAL OFFICERS OF HEALTH, 1, Thornhaugh-street, W.C.

Fever Hospital Medical Service Group.

FRIDAY, Nov. 27th.—4.15 P.M., Dr. D. Sage Sutherland: Certain Aspects of Administration in Connexion with Small Fever Hospitals.

BRITISH PSYCHOLOGICAL SOCIETY.

Medical Section.

WEDNESDAY, Nov. 25th.—8.30 P.M. (1, Wimpole-street, W.), Dr. E. Guttmann (in collaboration with Dr. W. S. Maclay): Some Clinical Observations on Schizophrenic Drawings.

KENSINGTON MEDICAL SOCIETY, St. Mary Abbots Hospital, Marloes-road, W.

TUESDAY, Nov. 24th.—9 P.M., Dr. G. Roche Lynch: (1) The Toxicology of the Barbiturates. (2) Recent Work in the Investigation of Cases of Disputed Paternity.

ST. JOHN'S HOSPITAL DERMATOLOGICAL SOCIETY, 5, Lisle-street, W.C.

WEDNESDAY, Nov. 25th.—4.30 P.M., Clinical Cases. 5 P.M., Dr. S. Cochrane Shanks: Problems of Dosage in Skin X Ray Therapy.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL INSTITUTION, 21, Albemarle-street, W.

FRIDAY, Nov. 27th.—9 P.M., Prof. E. Mellanby, F.R.S.: Recent Advances in the Treatment of Disease.

CHADWICK LECTURE.

TUESDAY, Nov. 24th.—5.15 P.M. (B.M.A. *House, Tavistock-*square, W.C.), Sir Francis Fremantle: The Doctor's Mandate in Parliament.

INSTITUTE OF HYGIENE, 28, Portland-place, W.

WEDNESDAY, Nov. 25th.—3.30 P.M., Dr. J. Browning Alexander: The Prevention of Respiratory Diseases.

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane-road, W.

MONDAY, Nov. 23rd.—2.30 P.M., Dr. R. D. Lawrence: Diabetes and Diseases of Pancreas.

TUESDAY.—2 P.M., Prof. E. H. Kettle, F.R.S.: pathological demonstration.

WEDNESDAY.—Noon, clinical and pathological conference (medical). 2.30 P.M., clinical and pathological conference (surgical). 4.30 P.M., Prof. S. P. Bedson, F.R.S.: Virus Diseases.

THURSDAY.—2.30 P.M., Dr. Duncan White: radiological demonstration. 3.30 P.M., Mr. G. F. Gibberd: Toxæmias of Pregnancy.

FRIDAY.—2 P.M., operative obstetrics. 2.30 P.M., Prof. John Fraser: Acute Surgical Infections of Bone. 3 P.M., department of gynæcology, pathological demonstration.

Daily, 10 A.M. to 4 P.M., medical clinics, surgical clinics or operations, obstetrical and gynæcological clinics or operations.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.

MONDAY, Nov. 23rd.—10 A.M., skin clinic. 11 A.M., surgical wards. 2 P.M., operations, surgical and gynæcological wards, medical, surgical, and gynæcological clinics. 4.15 P.M., Dr. Archer: biochemical demonstration.

TUESDAY.—10 A.M., medical wards. 11 A.M., surgical wards. 2 P.M., operations, medical, surgical, and throat clinics. 4.15 P.M., Mr. Neil Sinclair: Surgery of Gastric and Duodenal Ulcer.

WEDNESDAY.—10 A.M., children's ward and clinic. 11 A.M., medical wards. 2 P.M., gynæcological operations, medical, surgical, and eye clinics. 4.15 P.M., Dr. Redvers Ironside: Skeletal Muscle—Its Anatomy and Physiology.

THURSDAY.—10 A.M., neurological and gynæcological clinics. Noon, fracture clinic. 2 P.M., operations, medical, surgical, genito-urinary, and eye clinics. 4.15 P.M., venereal diseases.

FRIDAY.—10 A.M., medical wards, skin clinic. Noon, lecture on treatment. 2 P.M., operations, medical, surgical, and throat clinics. 4.15 P.M., Dr. Archer: biochemical demonstration.

SATURDAY.—10 A.M., children's and surgical clinics. 11 A.M., medical wards.

The lectures at 4.15 P.M. are open to all medical practitioners without fee.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Nov. 23rd, to SUNDAY, Nov. 29th.—LONDON LOCK HOSPITAL, 91, Dean-street, W., afternoon course in venereal diseases (open to non-members).—ST. JOHN'S HOSPITAL, 5, Lisle-street, W.C., afternoon course in dermatology (open to non-members).—BROMPTON HOSPITAL, S.W., Sat. and Sun., course in chest diseases.—NATIONAL TEMPERANCE HOSPITAL, Hampstead-road, N.W., Tues. and Thurs., 8 P.M., M.R.C.P. clinical and pathological course.—NATIONAL TEMPERANCE HOSPITAL, Hampstead-road, N.W., Mon., 8.30 P.M., Sir Walter Langdon-Brown: The Integration of the Endocrine System; Wed., 8.30 P.M., Dr. Levy Simpson: Pituitary Glands; Fri., 8.30 P.M., Dr. H. Gardiner-Hill: Thyroid.

Courses and lectures are open only to members of the fellowship.

LONDON SCHOOL OF DERMATOLOGY, 5, Lisle-street, W.C.

TUESDAY, Nov. 24th.—5 P.M., Dr. R. T. Brain: Virus Diseases of the Skin.

THURSDAY.—5 P.M., Dr. J. L. Franklin: Bullous Eruptions.

HOSPITAL FOR SICK CHILDREN, Great Ormond-st., W.C.

WEDNESDAY, Nov. 25th.—2 P.M., Mr. Eric Lloyd: Congenital Dislocation of the Hip. 3 P.M., Dr. D. N. Nabarro: Syphilis of the Second and Third Generations.

Out-patient clinics daily at 10 A.M. and ward visits at 2 P.M.

HOSPITAL FOR EPILEPSY AND PARALYSIS, Maida Vale, W.

THURSDAY, Nov. 26th.—3 P.M., Dr. Wilfred Harris: Clinical Demonstration.

NATIONAL HOSPITAL, Queen-square, W.C.

MONDAY, Nov. 23rd.—3.30 P.M., Dr. Hinds Howell: The Meninges and Cerebro-spinal Fluid.

TUESDAY.—3.30 P.M., Dr. Critchley: Aphasia, Apraxia, &c.

WEDNESDAY.—3.30 P.M., Dr. Kinnier Wilson: Clinical Demonstration.

THURSDAY.—3.30 P.M., Dr. Riddoch: Epilepsy and its Variants.

FRIDAY.—3.30 P.M., Dr. Purdon Martin: The Cranial Nerves.

Out-patient clinic daily at 2 P.M.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL, N.W.

WEDNESDAY, Nov. 25th.—4 P.M., Dr. H. Courtney Gage: X Ray Therapy, Yesterday, To-day, and To-morrow.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, Nov. 27th.—4 P.M., Mr. W. A. Mill: Diagnosis of Sinusitis.

ST. PAUL'S HOSPITAL, Endell-street, W.C.

WEDNESDAY, Nov. 25th.—4.30 P.M., Mr. Claude H. Mills: Some Interesting Urological Cases.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James's Hospital, Ouseley-road, S.W.

WEDNESDAY, Nov. 25th.—4 P.M., Mr. V. Z. Cope: Demonstration of Surgical Cases.

ST. JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE, 42, Ranelagh-road, S.W.

FRIDAY, Nov. 27th.—4.30 P.M., Dr. Francis Bach: Rheumatic Affections involving the Non-articular System.

MANCHESTER ROYAL INFIRMARY.

TUESDAY, Nov. 24th.—4.15 P.M., Dr. D. M. Sutherland: Inflammatory Conditions of the Colon.

FRIDAY.—4.15 P.M., Prof. Julian Huxley, D.Sc.: The Uniqueness of Man. (Lloyd Roberts lecture.)

ANCOATS HOSPITAL, Manchester.

THURSDAY, Nov. 26th.—4.15 P.M., Mr. Holt Diggle: Treatment of Laryngeal Cancer—Surgical Excision or Irradiation.

MANCHESTER HOSPITAL FOR CONSUMPTION, Deansgate.

WEDNESDAY, Nov. 25th.—4.30 P.M. Mr. V. F. Lambert: Demonstrations of Clinical Cases.

LEEDS GENERAL INFIRMARY.

TUESDAY, Nov. 24th.—3.30 P.M., Mr. Pain: Fracture of the Forearm.

LEEDS PUBLIC DISPENSARY AND HOSPITAL.

WEDNESDAY, Nov. 25th.—4 P.M., Dr. H. G. Garland: Recent Advances in Neurology.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.

WEDNESDAY, Nov. 25th.—4.15 P.M. (Western Infirmary), Prof. S. J. Cameron: Cancer of the Uterus.

NOTES, COMMENTS, AND ABSTRACTS

THE PRESENT PLACE OF PSYCHOTHERAPY IN MEDICINE

BY FREDERICK DILLON, M.D. Edin.

CHIEF ASSISTANT IN THE DEPARTMENT OF PSYCHOLOGICAL MEDICINE, UNIVERSITY COLLEGE HOSPITAL; MEDICAL SUPERINTENDENT OF NORTHUMBERLAND HOUSE MENTAL HOSPITAL

IT has become a platitude to point out the importance in treatment of the psychological aspect of disease. Recently it has been computed that 30–40 per cent. of all sickness is attributable to psychological causes and, apart altogether from the so-called functional disorders, it is now recognised that every physical illness produces a reverberation in the psychic system. The dentist, no less than the surgeon before a major operation, is compelled to give consideration to the fact that he is dealing with patients more or less in an abnormal state of mind, and that attention to the mental condition may go a long way towards ensuring the success of his ministrations. It becomes very important therefore seriously to consider the strange situation that has developed in psychological medicine and the singular paradox that whilst all are agreed as to the importance of psychotherapy there is great divergence of opinion between psychotherapists themselves on the theory and practice of the subject. A remarkable number of schools of thought have sprung into existence, each differing from the others on fundamental points; and the teaching they offer with confidence is often contradictory.

It is probable that this confusion is only a passing phase. Differences of opinion on important points arise not infrequently in the investigation of complex phenomena, and are resolved, as a rule, in the course of time as knowledge and experience accumulate. Nevertheless in the case of psychological medicine there are certain disquieting features which indicate that the trouble is more deeply seated, and that the future of the whole subject is in danger of being seriously prejudiced. The number of conflicting schools, for example, far from diminishing appears to be steadily increasing, and a bias and trend is being given to this mode of treatment which bid fair to lead it outside scientific medicine altogether.

Departures from Science

Exceptional difficulties have, of course, always stood in the way of the scientific investigation of mental phenomena. Psychology has always been intimately involved in the prevailing beliefs on ethics and religion, and any new views that might conflict with these established faiths have, not unnaturally, met with the strongest opposition. The phenomenon of resistance to new advances is a familiar one in the history of medicine, from Vesalius onwards, and it is obvious to the impartial observer that psychology is still far from having disentangled itself from non-scientific influences.

Conventional opposition of this kind from lay sources and those lacking specialised knowledge may be looked upon as normal. But the matter assumes a more serious aspect when it is realised that in this branch of medicine psychotherapists themselves, in many cases, have abandoned the purely scientific approach and claim the right to make use of other than scientific methods in the study and treatment of their patients. It does not seem to have been generally recognised how significant is this departure from scientific standards in an important department of medicine. Psychology, it is true, is one of the most complex of these departments, and progress in acquiring knowledge is likely to be slow and laborious. But is this any reason for relinquishing the method which has, so far, proved to be the only technique capable of producing accurate systematic knowledge? No analogy is to be found in any other subject. It is inconceivable, for example, that a serious claim could be made to acquire knowledge and found a system of treatment by other than scientific means in neurology or cardiology; and the onus of proof, so far lacking, is on those who consider they are capable of carrying this out in disorders of the mind.

The three main schools of psychotherapy, of Freud, Adler, and Jung, provide instructive examples. Jung has frankly admitted that part of his system goes beyond the ordinary limits of science and cannot strictly be justified on scientific principles.[1] His complicated body of teaching is thus a blend of scientific and non-scientific tenets, the latter evidently being of a mystical or religious character. Adler's doctrine, with its insistence upon the need for a regulative principle, the frequent use made of such terms as the soul, God and the devil, and the ideal of the brotherhood of man, plainly shows the large ethical element involved. Indeed it is explicitly stated that as functional nervous disorders are looked upon as diseases of the will it is impossible to regard aberrations of the will in isolation from ethics.[2] Freud, on the other hand, claims that psycho-analysis has been evolved on purely scientific lines, and follows scientific methods in its development and technique. The question whether this claim can be strictly substantiated is irrelevant to our present purposes; the important point is its adherence to accepted scientific standards.

The Empirical Outlook

Clearly no useful comparative estimate of the three systems can be made unless these significant differences are taken into account. Obviously criticism on a basis of facts and logical inference is rendered futile if the teachings under review reject facts and ordinary logical standards. Is it possible, however, that some justification can be put forward for this departure from scientific methods?

Apart from personal predilection it would appear that the motive is to be seen in the difficulties inherent in the subject, which have already been mentioned, and in the hope that along some other line of attack new means of progress may be discovered. But it is far from clear on what precise grounds this hope is likely to be realised. In the realms of ethics, religion, and æsthetics there is nearly as much conflict of opinion as in psychology itself, and the only help that could be anticipated by bringing in conceptions from these spheres would be of a purely empirical character and capable of application only to particular cases.

Empirical success, however, has unfortunately been one of the greatest obstacles to the progress of psychotherapy on properly scientific lines. Consideration of the history of the subject makes it evident, in fact, that the important distinction has been lost sight of between the empirical and the scientific. In the early period of its development psychotherapy was purely an empirical art. Mesmer is said to have been able to produce remarkable results by the hypnotic methods he employed, but the theory upon which he worked, of the action of a magnetic fluid, we know to have no scientific foundation. Suggestion, the next development of the subject, still lacks an adequate explanation, and persuasion and re-education are generally looked upon as more elaborate forms of suggestion. It was with the discovery of the analytical method of investigation and interpretation, which we owe to Freud, that the strongest hopes arose for the development of a truly scientific psychotherapy. We have seen, however, the different directions in which the three main analytical systems have diverged.

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[1] Jung, G. C.: Collected Papers on Analytical Psychology, 1917, p. xv.

[2] A.B.C. of Adler's Psychology, 1930, p. 47.

The essence of scientific knowledge is accuracy, depending in the first place upon accurate observation of facts, and in the second upon accurate inference from the facts of observation. This is the basis of all science, and every creative or imaginative addition of theory or hypothesis must conform to it. Scientific method is primarily a process by which a structure of facts and inferences is acquired, and practical application, strictly speaking, can reliably be founded only upon the prior data so obtained. In a purely empirical system, on the other hand, no account need be taken of facts; indeed one of the dangers of utilising such systems arises from the facility with which facts may be ignored or modified in concentrating attention upon results. That "facts are sacred" is nevertheless an intrinsic part of the creed of every responsible medical man, and no deliberate modification of it is justified unless for exceptional reasons in individual cases.

To be utilisable, knowledge must be expressed in intelligible language, and no system of teaching should be accepted unless it is conveyed as clear and distinct ideas. This is a particularly important maxim in psychology, adherence to which would save us from the too frequent difficulties arising from the use of obscure concepts and ambiguous phraseology. Vagueness, indeed, is one of the principal dangers of psychological work, and it seems to exercise a peculiar fascination on certain types of minds, being often used as a defensive mechanism against the facing of unpleasant facts.

Successful Pseudo-science

It would be an interesting experiment to observe and analyse the results obtained by the deliberate application of an apparently rational but purely empirical method of psychotherapy. A form of treatment derived from the pseudo-science of numerology, for example, would probably provide a suitable basis for such an investigation—especially if given an impressive title such as "the Pythagorean System of Psychotherapy," and heralded by judicious propaganda.

A *rationale* could without much difficulty be improvised. We have the authority of the great Pythagoras for pointing out that Number partakes of the essence of things and is of the utmost significance for all of us. Can it not be shown that our lives are lived under the influence of personal integers and that our destinies are controlled by their obscure power? It is but a step from this to recognise that maladjustment, with its attendant train of nervous symptoms, arises from disharmony within the individual because he is, all unknowingly, attempting to pursue his way or scheme of life according to a number which is not intrinsically his. Treatment by the Pythagorean method would accordingly be designed to supply the requisite guidance in discovering the individual's significant or essential number, by living according to which the normal rhythm and harmony of life would be preserved!

From past experience there is every reason to believe that a fantasy system of treatment such as this would meet with a considerable measure of success, although based on no known scientific facts. It would in this way provide an additional illustration of the truth that good results from a method of psychological treatment constitute no proof of the validity of the supporting doctrine. We should not, in view of the absence of a factual basis, expect the achievements obtained with this type of therapy to be permanent or dependable. In those cases in which apparent "cures" have occurred in such circumstances there is evidence that they are probably won at the expense of loss in some other department of the mind. According to our present knowledge of the working of the psychic system we are only able to attribute the results of such empirical methods to the action of suggestion. This, as we have already observed, is still awaiting an explanation and forms in fact one of the most important problems in the sphere of psychological medicine, from its far-reaching influence in the mind and the obscurity of its mode of operation. The development of an accurate and scientific system of psychotherapy is rendered, in consequence, difficult of attainment. But if the subject is not to remain indefinitely at the empirical level the problem is one that must be squarely faced by every practising psychotherapist.

Duty of the Medical Psychologist

The conclusion forced upon us is that a great part of the psychotherapy practised to-day is empirical and cannot be regarded as strictly scientific. It should be self-evident that a genuinely scientific system of psychological treatment can be developed only by following the principles and method which have guided the progress of medical science in every other department. That is to say, it must be based upon an established and accepted foundation of facts concerning the structure and function of the mind. It may be that this necessary foundation is not yet available, in which case we must be content with methods of therapy which for the present are frankly accepted as empirical. Or it may be that the true facts are being obscured by the contending claims of the different schools of thought. It should, however, be an obligation upon every psychotherapist to endeavour to promote the progress of the subject on properly scientific lines and to become more clearly "method-conscious" in this department.

The therapeutic aspect of psychological work is important and must receive due consideration; but of far greater ultimate importance is the need to secure a basis of knowledge upon which all applied methods should be founded. It will tend only to increase the difficulties in an already complex subject, and make confusion worse confounded, to blend scientific with non-scientific elements—unless with the clear understanding that this is done as part of a purely empirical procedure in the absence of something better. Contradictory principles cannot both be true, and consistent progress will come only if we keep in mind the fact that when a proposition is affirmed its contradictory is thereby repudiated, and that a law of theory once maintained debars assent to certain other formulations.

The distinction between the empirical and scientific is of particular importance in psychotherapy, and any system which professes to be scientific has a greater claim on our attention and critical judgment than others which, either expressly or by implication, exist merely or mainly as instruments of treatment. Difficult though the problems at issue may be, it is obvious that they require to be dealt with in a more realistic spirit than hitherto if psychotherapy is to take its place on an equal footing with the other branches of medical science.

PHARMACOLOGY AS WELL AS THERAPEUTICS FOR NURSES

OPINIONS differ considerably about the amount of purely medical knowledge which should be taught to a nurse. It certainly seems undesirable to expect her to commit to memory too many facts and theories which it is not her place to apply in the practice of her profession. Many books intended primarily for the nursing profession might reasonably be supposed to have been written for the medical student. This applies especially to those which reach us from the United States. The author of one recently published on materia medica, pharmacology, and therapeutics[1] states in a foreword that she has attempted to persuade the student to reason out the action of drugs from a knowledge of physiology, and she certainly presupposes a considerable degree of basic scientific knowledge. It is for example assumed that the reader understands what is meant by the pH of a solution. The nurse is, moreover, apparently expected to memorise much of the information, since each chapter is followed by questions and tables which have to be filled up from memory. Medical examinations are apparently threatened with a new horror, the introduction of analogy questions on the lines of intelligence tests. The victim has to fill in the missing terms in such statements as "Phenol: benzine: ——: emodin, and —— may, in overdoses and frequently repeated, cause nervousness, headache, palpitation, and hypochondria."

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[1] Materia Medica, Pharmacology, and Therapeutics. Second edition. By Maude B. Muse, R.N., A.M., Assistant Professor of Nursing Education at Teachers College, Columbia University. London and Philadelphia: W. B. Saunders Co., Ltd. 1936. Pp. 634. 12s. 6d.

The information given in the book is on the whole accurate and up to date. Criticism is in any case disarmed, since the authority for practically every statement made is given in the form of page references to standard text-books on pharmacology. Since, however, standard works tend to date rapidly this has led to a few misstatements. For example, theelin (p. 435) is not now obtained from the urine of pregnant females but from that of horses, and insulin (p. 579) is no longer standardised by clinical assays but on animals; a polygram tracing (p. 278) is described as an electrocardiogram. We are glad to see emphasis laid on many aspects of therapy of particular importance to nurses. These comments bear the stamp of personal experience. The chapter on physiotherapy is particularly well done, and there is an interesting historical account of the transition from medieval medicine to modern therapy. The book is excellently illustrated.

GENESIS CHAP. I. IN THE BIBLE OF THE FUTURE

To the Editor of THE LANCET

SIR,—Can any of your readers tell me if the poem of this name was written by the late Dr. Arthur Giles? He claimed to have found the work when a student at Edinburgh, but this may have been his modesty; though no copy has been found among his verse

"And (man) developed a thumb
For that he had need of it."

are two lines from this Darwinian version of Genesis of which I am anxious to obtain a copy.

I am, Sir, yours faithfully,
Enfield, Middlesex, Nov. 15th. T. JOHNSTON.

AN OBSCURE CASE OF VERTIGO

R. A. G. writes: I would suggest that *M. L. J.'s* patient's attacks of vertigo may be due to a disturbance of the ocular movements. The notable features of the attacks—namely, that they are induced by sudden movements of the head, or by postural change, and that they are apt to occur on waking in the morning—would fit in well with the diagnosis of paresis of an ocular muscle. When the degree of muscular weakness is slight the ocular movements are to a certain extent under control, and therefore its presence is demonstrable only by a very careful examination.

TO OLD MEMBERS OF THE LIVERPOOL MEDICAL SCHOOL

THE following letter reaches us from Prof. Henry Cohen and Prof. W. H. Wood, respectively chairman and dean of the Liverpool faculty of medicine. "Mr. Peter Duncan, chief laboratory assistant in the medical school of the University of Liverpool, attains the age of 73 this month, and will be retiring in December, 1936, after 43 years' service. It is the intention of the faculty of medicine to make him a presentation in the form of a cheque on his retirement at Christmas. It was thought that past members of the staff and old students of the medical school might wish to contribute to the presentation. It has been decided that donations shall be limited to one guinea. Any former member of the staff, or old student desiring to contribute, should forward the amount to the faculty of medicine, c/o the Dean, not later than Dec. 16th."

CORRIGENDUM.—We are informed that an advertisement supplied to us on behalf of Glaxo Laboratories Ltd. and published in our last issue contained an incorrect statement of the new prices of Ostocalcium Tablets. The reduced prices are: 2*s.* 3*d.* for 50, 4*s.* for 100, 12*s.* 6*d.* for 500, and 17*s.* 6*d.* for 1000.

Appointments

ANDERSON, MARY, M.B. Dub., has been appointed Assistant School Medical Officer for Newcastle upon-Tyne.

BARLOW, D. S. M., M.B. Lond., F.R.C.S. Eng., Surgical Registrar at the London Lock Hospital.

BATEMAN, G. H., B.M. Oxon., F.R.C.S. Eng., Assistant Surgeon to the Ear, Nose, and Throat Department of the Belgrave Hospital for Children, London.

BINTCLIFFE, [illegible] Surgical Registrar to t [illegible] London.

BIRNIE, G. L [illegible] the City Hospital, Nottingham.

BLACKBURNE, M.B. Lond., F.R.C.S. Eng., Resident Surgica Officer at the Hull Royal Infirmary.

COLVER, THOMAS, M.B. Sheff., M.R.C.P. Lond., Out-patient Medical Registrar at the Hospital for Sick Children, Great Ormond-street.

COX, M. CHARLTON, B.Sc., M.R.C.S. Eng., Junior Lady Assistant Medical Officer at the Winson Green Division of the City of Birmingham Mental Hospital.

DOLLAR, J. M., M.S. Lond., F.R.C.S. Eng., D.O.M.S., Hon. Ophthalmic Surgeon to the Elizabeth Garrett Anderson Hospital.

FITZGERALD, F. P., M.B. Dub., F.R.C.S. Irel., Surgical Registrar to the Royal National Orthopædic Hospital, London.

FOX, R. W. S., F.R.C.S. Eng., Surgical Registrar at the Hospital for Sick Children, Great Ormond-street.

HEANLEY, C. L., B.Chir. Camb., F.R.C.S. Eng., M.R.C.P. Lond., Surgical First Assistant and Registrar at the London Hospital.

HEATH, P. A. M., M.R.C.S. Eng., Assistant Medical Officer to St. Andrew's Hospital, Thorpe, Norwich.

MCBRIDE, CHARLES, M.B. Belf., Tuberculosis Officer and Medical Superintendent at the Stanfield Sanatorium, Stoke-on-Trent.

MONKHOUSE, J. P., M.B. Lond., F.R.C.S. Eng., Consulting Laryngologist to the King Edward Memorial Hospital, Ealing.

MORGAN, C. NAUNTON MORGAN, M.B. Lond., F.R.C.S. Eng. Assistant Surgeon to St. Bartholomew's Hospital, London, and Assistant Director of the Surgical Professorial Unit.

PASSE, E. R. G., F.R.C.S. Eng., D.L.O., First Assistant and Registrar to the Ear, Nose, and Throat Department of the London Hospital.

PEEL, J. H. B.M. Oxon., F.R.C.S. Eng., M.C.O.G., Assistant Obstetric and Gynæcological Surgeon to King's College Hospital.

RAVEN, R. W., F.R.C.S. Eng., Assistant Surgeon to the Hôpital et dispensaire français, London.

ROBERTS, R. I., M.R.C.S. Eng., D.M.R., Assistant Hon. Medical Officer to X Ray Department of the Royal Hampshire County Hospital, Winchester.

ROBERTSON, K. M., M.D., M.R.C.P. Lond., Hon. Physician in Ordinary to the Royal Hampshire County Hospital, Winchester.

SERVANTE, S. Q., M.R.C.S. Eng., Resident Surgical Officer at the City Hospital, Nottingham.

STRONG, E. C. N., F.R.C.S. Eng., Assistant Surgeon to the Birmingham Ear and Throat Hospital.

WALTON, L. H. F., M.R.C.S. Eng., Physician in Charge of the Department of Physical Medicine at the Prince of Wales General Hospital, London.

WYSE, R. W., M.B. Glasg., Casualty Officer and Fracture House Surgeon at the Chesterfield and North Derbyshire Royal Hospital.

Department of Health for Scotland.—The following appointments are announced:—

KENNEDY, T. D., M.B. Edin., Senior Regional Medical Officer in Glasgow;

MUIRHEAD, A. J., M.D. Edin., D.P.H., Regional Medical Officer in Dundee; and

FLEMING, C. M., M.D. Glasg., Regional Medical Officer in Glasgow.

Royal Cancer Hospital (Free), London.—The following appointments are announced:—

FLOOD, P. A., M.R.C.S. Eng., D.M.R., Senior Assistant Radiologist;

NOWELL, STANLEY, M.B. Manch., D.M.R., Second Assistant Radiologist; and

ADAMS, S. B., M.B. Brist., D.M.R., Third Assistant Radiologist.

Certifying Surgeons under the Factory and Workshop Acts: Dr. P. T. T. MACDONALD (Kingswood District, Gloucester); Dr. G. D. Roche (Turriff District, Aberdeen); and Dr. D. B. SMITH (Waltham Abbey District, Essex).

Medical Referee under the Workmen's Compensation Act, 1925: D. S. PRACY, F.R.C.S., of Atherstone, Warwickshire, for the Atherstone, Coventry, and Nuneaton County Court Districts (Circuit No. 23).

ADDRESSES AND ORIGINAL ARTICLES

FROM CONSUMPTION TO TUBERCULOSIS

A STUDY OF THE DISEASE, PAST AND PRESENT *

BY S. ROODHOUSE GLOYNE, M.D. Leeds, D.P.H.
PATHOLOGIST, CITY OF LONDON HOSPITAL FOR DISEASES OF THE HEART AND LUNGS, VICTORIA PARK

FROM consumption to tuberculosis. In setting forth on this quest of knowledge, I am not unmindful of Robert Boyle's remarks in his "Sceptical Chymist" about the chemist of his day. "Methinks the chymists in their searches after truth, are not unlike the navigators of Solomon's Tarshish fleet, who brought home from their long and tedious voyages, not only gold, and silver, and ivory, but apes and peacocks too." But at the risk of bringing apes and peacocks, and other vain creatures, rather than good solid worth of historical treasure, I wish to try and set forth some of the great truths on which our specialty of tuberculosis has been founded.

Looking back over the story one is impressed with the ups and downs of the study. We have had our Dark Ages and Renaissances, even our Reformations and Revolutions like the rest, and they have often come about through influences quite outside the control of those who studied the disease. Take, for instance, morbid anatomy—not a revolution but an evolution. It would be difficult to exaggerate the influence of post-mortem examinations on our study, but the history of the coroner's court suggests that the practice of making these examinations was developed out of the purely legal duty of collecting feudal dues at death. Another example—this time a relic of our story's dark ages—is to be found in that baneful relic of seventeenth century legislation, the window tax. Passed in 1695 in order to defray the expenses of silver recoinage, it was not repealed until 1851 when it was producing a revenue of nearly two million pounds a year. Its effect upon cottage sanitation must have been woeful, and even to-day the old cottage with the bricked-up window is not an unfamiliar sight.

Clinicians and Anatomists

We have the Greeks to thank for the early work on the disease. Not only did they depict the chronic wasting forms of chest disease, but they described empyema and even practised oleothorax. And when, later, they took with them to Rome their knowledge of clinical medicine they rescued the study of tuberculosis from destruction. Indeed, we owe to them the word tubercle as well as much else. Of course they confused other diseases with tuberculosis, but so do we. The wonder is not that they confused so much, but that they got so much right and that it was possible to learn so much morbid anatomy by way of clinical medicine.

For the rest, morbid anatomy had to wait all through the Middle Ages and the Renaissance for the advent of Sylvius, still teaching the while the tenets of Galen. During these centuries of religious strife, Arab, Jew, and Christian at least agreed upon one thing, they all looked with extreme disfavour upon any interference with the dead, and popular prejudice was on their side. But knowledge came at the long last. Writing a few years after Harvey's discovery of the circulation, Sylvius described the enlargement of the lymphatic glands in tuberculosis as seen in the cadaver. He concluded that these same glands "must be present in the body in a healthy state also but so small that they escape detection . . . like the capillary blood-vessels in the conjunctiva." And so with one brilliant observation and deduction the real foundation of the morbid anatomy of tuberculosis was laid. It is a pity Sylvius did not follow it up, but he was busy thinking out a new system of humoral pathology and the observations on the lymph glands were carried no further. Except for a few isolated workers such as Morgagni and Morton, Stark, and Percival Pott morbid anatomy did not really advance the study of tuberculosis greatly until after John Hunter. Meanwhile however two contributions of fundamental importance had come from the clinical side—the introduction of percussion and auscultation.

Sylvius had blazed the trail but few had followed. For the most part morbid anatomy had to wait upon the elder brother, normal structure, and there was little progress along these lines until after Harvey had described the circulation and Malpighi the finer anatomical structure of the lung. Nearly a century passed and then in 1745 those uneasy colleagues, the barbers and the surgeons, separated and with this dissolution went by the board an old by-law which forbade members to practise dissection. Private anatomy schools now grew up apace and with them the gruesome products of the hangman's art, thefts of dead bodies, bribes, blackmail, and hush-money. They were rough and ready times, the age of Smollett and "Roderic Random," and a remarkable literature was produced. Out of this age there arose also an equally remarkable body of morbid anatomists of whom John Hunter was facile princeps. It is difficult to estimate the full value of a man who touched life at so many points as Hunter did, and his contribution to tuberculosis is to be sought in the foundation of morbid anatomy which he laid.

By the middle of the nineteenth century the whole body had been thoroughly explored for tuberculosis as far as it was possible to do so with the naked eye. Once the prejudice against post-mortem examinations had been removed morbid anatomists took full advantage of their opportunities. We are told that in Vienna Rokitansky had the disposal of between 1500 and 1800 bodies a year and that in the course of his life he made 30,000 autopsies. Many of these men were clinicians too and they took infinite pains to correlate clinical signs and post-mortem findings. It is said that Sutton used to mark out the limits of dullness with a caustic pencil, and it is related that on one occasion after he had left the ward a patient called out to his opposite number "Did he mark yer, Bill, 'cos them as he marks dies." Of course they did. Sutton was defining what he expected subsequently to find.

At this time a new force came into play with the discovery of the achromatic lens in the use of the microscope. When Sir James Paget discovered the *Trichina spiralis* in the dissecting-rooms of St. Bartholomew's Hospital in 1835 there was no microscope in the hospital, nor in the Natural History Section of the British Museum, and he had to go to a botanist to borrow one. Within ten years von Gluge and Lebert had applied microscopical technique to the study of the tubercle and histological discoveries came thick and fast. Langhans described the giant cell and Hermann, Ehrlich, Weigert, and others introduced stains. Overshadowing the whole subject was the great intellect of Virchow. Quite apart from his contributions to the study of tuberculosis—and they were numerous, including the recognition of the tuberculous nature of lupus—Virchow created cellular pathology as a separate study. He dominated his day and generation, as Metchnikoff did the next, with the magnitude of his conceptions. As an advanced liberal in education, politics, and pathology alike, the human body was to him a cell state in which every cell was a citizen and disease a conflict of citizens.

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* Abridged from a presidential address to the Tuberculosis Association on Nov. 20th.

The Parasite

Meanwhile side by side with the new study of cellular pathology a fresh conception of tuberculosis was growing up, that of infectivity. The idea, however, was not entirely new. As far back as the eighteenth century Spain had made regulations, similar to those in vogue for plague, for the burning of clothing, &c., of persons who had died of tuberculosis. Pasteur's new work on fermentation and the diseases of the silkworm, too, doubtless turned men's minds in the same direction. Villemin's fertile brain did the rest. In 1867 he published the results of experiments which showed that tuberculous pus injected into animals caused tuberculosis. Cohnheim, Baumgarten, and others followed and Koch supplied the final proof with the discovery of the bacillus.

At this point the two great conceptions of modern pathology, the cell and the parasite, reached common ground. Virchow's cellular citizens were not necessarily in conflict with each other, they were, as Metchnikoff showed, in conflict with a common enemy from without, to wit, the parasite. "Henceforth," said Koch, "the fight with this terrible plague of mankind will be no longer against a vague something but against a tangible parasite whose conditions of life for the most part are known and can be still investigated."

With one stroke Koch had put into their correct perspective all the loose ill-defined terms of the past—King's evil, scrofula, consumption, phthisis. No wonder Virchow sat on in silence when Koch had finished speaking at that memorable meeting of the Berlin Physiological Society. To Virchow consumption and tuberculosis were two "separate, though commonly associated, morbid processes" (Krause), and the old warrior of many medical battles, it is said, never to the end of his life reconciled himself fully to the new order. From consumption to tuberculosis: the road had been a long and difficult one. Physicians, surgeons, morbid anatomists of all ages had trodden it. They had fallen by the way, many of them victims of the disease they studied and now at last the goal was reached. But only to start afresh. Science knows no rest and in the light of the new knowledge the quest began all over again.

The first of the new problems was produced by Koch himself. Ten years after the discovery of the bacillus he announced to the world that the bacillus excreted a toxin which he called tuberculin. This is not the place to embark on the stormy sea of the tuberculin controversy, the "Heilmittel" which failed to cure. The most important point of the discovery, to my mind, was not the tuberculin at all, but the effect which the conception of a tuberculous toxin has had upon all our subsequent ideas. This view of an exo- and an endo-toxin has shaped our theories, stimulated our research, and altered profoundly our treatment. Thanks to those who followed Koch along this line, rest as a therapeutic measure has come to be perhaps the most important of the great tuberculosis triad. This advance has been largely if not entirely due to the discovery of the toxins of the bacillus. It is not my purpose to enter upon the history of the treatment of tuberculosis, but I often wonder what the toll of the disease must have been in the early days of the fresh-air school before rest was recognised as so vitally important. As Francis Thompson remarked in his essay on *Brother Ass the Body*, to over-drive a donkey was barbarous; to over-drive one's own lawful body was a meritorious act.

The Patient

All thoughts were now, however, turned to the tubercle bacillus itself. In studying the seed and its progeny we seem to have neglected those considerations of soil which had been so important before the discovery of the bacillus. If once we could control the seed, the soil would look after itself. And so we framed preventive laws for the eradication of the bacillus and threatened pains and penalties for expectorating in public places, which we have never carried out. But we are still woefully ignorant about the soil: indeed we are not much wiser about it than our fathers were. And yet it is a matter of very considerable importance, especially as regards the native races under the care of the British Empire. If we are not very careful tuberculosis will decimate some of the races of Central Africa which are virgin soil in the same way that it has done the Maoris and North American Indians.

As for heredity, we are now fairly confident that the tubercle bacillus is not part of our inheritance. Occult familial infection in early life fits the facts in these cases better and is supported by clinical and experimental evidence. Hereditary predisposition has not stood us in much better stead. It seems to be limited to rare instances in which congenital defects, such as stenosis of the pulmonary artery, profoundly alter the hæmo-respiratory exchange. But if hereditary predisposition is of so limited an application what shall we say of an environmental predisposition? Here the evidence is more convincing. There are cases, for instance, in which the portals of entry stand permanently opened too wide, as in the case of the mouth-breathing child, though I sometimes wonder if the argument has not been a little overworked. There are psychological conditions too which favour mass infection, notably amongst the feeble-minded and insane, who tend to be careless and dirty in their habits and fall a ready prey to most infections, so much so indeed that some physicians have sought to postulate a special immunological defect in the soil. Whether chronic respiratory disease in general provides a favourable soil for the tubercle bacillus has been discussed for many years. The statistical proof in the affirmative in the case of silicosis and asbestosis is now quite definite, but what shall we say of the catarrhal child who returns to the out-patient department of our hospitals and to our dispensaries winter by winter? Is he more prone to tuberculosis than his healthy brother or not? Opinion seems to be divided and I know of no research work directed to the elucidation of the problem. Certainly in culture media in the laboratory the tubercle bacillus does not thrive well in the presence of other organisms, especially those of the pyogenic group.

And lastly there are the disorders of metabolism. No one has yet satisfactorily shown, for example, whether chronic alcoholism is or is not a predisposing cause of tuberculosis; so few people seem able to approach this delicate subject in a proper spirit of impartial inquiry. Syphilis again is in the same position, as are the vitamin-deficiency diseases. The confusion between syphilis and tuberculosis especially was a sore trial to the early morbid anatomists. Some of the older writers believed that syphilis tended to protect against tuberculosis, others that it predisposed, and although of late years precise laboratory methods have produced a wealth of new information on the subject they have not solved the problem. In the case of diabetes and tuberculosis we are on firmer ground. The diabetic has always been considered a favourable soil for the tubercle bacillus and until the introduction of insulin these two diseases presented a combination which was utterly defeating. Nowadays with the delicate adjustments of the blood-sugar which have become possible the tuberculous diabetic is in a far happier position and so is the physician. But with a few brilliant exceptions such as this, we do not know a great deal more about the soil than Koch knew, and I would suggest that the time has come when we might well reconsider the question in the light of all the new knowledge that has come to us by way of the physiological laboratories.

The Uses of X Rays

Let us now turn for a moment to another recent development in our story—radiology. The physicist may well be proud of his contribution to the study of tuberculosis. He gave us the modern microscope with its achromatic lens without which we could hardly have advanced much beyond Laennec, for the nineteenth century morbid anatomists saw almost as far as was possible with the naked eye. The physicist has now given us another pair of eyes, as it were, in X rays. Röntgen discovered them as long ago as 1893, but their real contribution to the study of tuberculosis did not begin until after the war. For myself I shall always feel immensely proud to have known and worked at Victoria Park with Hugh Walsham who did so much to pioneer the chest radiogram in London and who died a martyr to the cause, a colleague so serene and happy in temperament that I doubt if he ever thought of himself as a martyr at all.

The influence of X rays upon the diagnosis of chest diseases has indeed been far-reaching, but their effect upon pathology seems likely to become almost as important. A new science which might almost be called Röntgen pathology has grown up in the last twenty years. It began with hilum tuberculosis. The enlarged shadows at the roots of the lungs were for a short time thought to be the primary pulmonary lesion in tuberculosis, despite the fact that such a view caused very considerable difficulties in the matter of lymphatic drainage, and I well remember the satisfaction I experienced when Clive Riviere called my attention to the work of Parrott and Küss and the Ghon School which showed that there was an earlier lesion in the lung parenchyma and so reconciled anatomy and pathology. Hilum tuberculosis, if not primary, was of relatively small importance, and it has gone with the years like the early skiagrams on glass on which its images were recorded.

The frühinfiltrat came next. Clinicians and pathologists had for many years been aware of the fact that in certain cases the early lesion was not at the apex but some inch and a half below, but it remained for the German school of radiologists to demonstrate this lesion in all its bearings. From that time progress has been rapid.

Radiology has also vastly enlarged our knowledge of cavities and adhesions; it has furnished us with the necessary controls in collapse therapy and brought to light hitherto unsuspected pathological conditions such as epituberculosis. Further, it has gone far to create a new pathology in the study of other shadows. I use this last phrase advisedly because it raises an important point in the study of the disease. Radiology, as its technique improves, is presenting to our eyes new images, but they *are* images; we cannot touch them and they emit no sounds. They are recognisable by sight alone, as light and dark areas, as shadows with sharp or ill-defined and woolly margins. It seems to me we are in urgent need of a new terminology to describe what we see with that precision which is essential to all branches of science. I am reminded of a passage in Sir Philip Sidney's "Apologie for Poetrie." "We cannot play at chesse, but that wee must give names to our Chesse-men; and yet mee thinks, hee were a very partiall Champion of truth, that would say we lyed, for giving of peece of wood, the reverend title of a Bishop." All the same there is a tendency to borrow a phraseology from pathology and in so doing sometimes to introduce an unwarrantable deduction from a mere shadow. Thus in the case of hilum shadows an accurate phraseology was certainly needed for what we saw, but when we added the word tuberculosis, we made an inference from the observed facts which we now know to have been often wrong. A similar tendency is creeping in with regard to miliary shadows. We are apt to describe them as miliary tuberculosis. But there is a group of cases in which these shadows disappear after some months and are unaccompanied by the usual symptoms and signs of serious illness. Now miliary tuberculosis is a pathological term with a well-defined meaning denoting a fatal disease and I cannot help feeling that our minds will be all the clearer if we can give to the new science of radiology a terminology of its own which cannot be confused with pathology.

Clinical Pathology of Tuberculosis

The last event in the story which I have only time to deal with very briefly is clinical pathology. As far as tuberculosis is concerned it may be said to have started about 1846 with the practice of heating sputum with caustic solutions and examining the product under the microscope for elastic fibres. Before Koch's day the "curly fibre," as the old physicians called it, was of considerable diagnostic importance. The first text-book devoted solely to the clinical pathology of tuberculosis in English is that of Troup of Edinburgh, who published a most interesting work in 1886 entitled "Sputum: the Microscopy and Diagnostic and Prognostic Significations." The reader of the present day will probably be not a little astonished to find how much Troup knew about sputum examination. Even then, only four years after the discovery of the tubercle bacillus, we find him complaining that like Aaron's rod it had swallowed up everything else in the clinical pathology of sputum. The book contains photomicrographs of Curschmann's spirals and other bodies, made with a simple paraffin lamp illuminant, which would put many modern text-books utterly to shame.

In his original work Koch used alkaline methylene-blue with a counterstain of Bismarck brown for demonstrating the tubercle bacillus in pus. The famous Ziehl-Neelsen stain came later. Ehrlich laid the foundation of it by the discovery of the acid-fast property of the bacillus. Ziehl and Neelsen only contributed small modifications, and Prof.

William Bulloch tells us that neither the one nor the other published the method which bears their name: it is only to be found in a footnote in a paper by Johne in 1885. Such is fame. But the stain has become acid-fast in more senses than one. It has stood the corroding test of time for more than fifty years, a long long time for any technique in clinical pathology.

It is difficult for us to realise what a revolution Koch's bacillus created in clinical medicine. Within four years of its discovery Vincent Harris had overhauled some of the old specimens in the museum of St. Bartholomew's Hospital and found tubercle bacilli in several of them believed to be probably 70 years old, whilst the bacillus was being sought for in every kind of secretion. The Gaffky scale came about the same time, "a rather intricate musterbook," as Troup called it, for recording the number of bacilli per field. Since that day the clinical pathologist has been striving to find the bacillus ever earlier and earlier in the course of the disease. The latest developments in this direction have been concerned with the cultivation of the bacillus on various complicated media. This method has now reached such a high degree of proficiency that the biological test is under a cloud. Uncontrolled by subsequent guinea-pig test there is in it an obvious danger. A number of strains of acid-fast organisms other than typical tubercle bacilli have already been found, especially in renal disease and in long-standing chronic pulmonary disease. A new class of acid-fast bacteria indeed is in process of discovery and one awaits the results with some interest. In this connexion the rarity of the avian bacillus in human lesions should be noted. A small group of cases has been recorded on the Continent and in America, but as far as I am aware no case has yet been discovered in this country. The bovine bacillus has now achieved the notoriety of a vast literature of its own. It is responsible for some 5 per cent. only of the tuberculosis mortality of this country, but unfortunately some 20–30 per cent. of the tuberculosis deaths in children are due to its ravages. There appears to be no good reason why it should not become as rare as the avian bacillus if as a nation we would apply our will to the task.

Before leaving the subject of clinical pathology I cannot refrain from a brief mention of the tuberculin surveys, now the order of the day. The number of the records, especially amongst school-children, runs into tens of thousands yearly, though we in this country have been less enthusiastic than most. One wonders if it is not time that a good deal of this rather wearisome work ceased, and that instead of vast numbers of tests performed once and once only, the enthusiasts should repeat their tests at more regular intervals with X ray and clinical controls, as Heimbeck has done in the Oslo hospital nurses. The paper X ray film has made such a course economically possible.

The Outlook

And now my story must end. Consumption, the wasting disease of uncertain pathology but dreaded prognosis, has become tuberculosis, and this in turn has become a curable disease.

In Paris just after the time of Napoleon, Laennec tells us, about one-third of the patients attending the hospitals suffered from phthisis and the death-rate must have been appalling. Now the mortality is steadily falling and, what is perhaps more significant, certain forms of the disease are disappearing. Twenty years ago Cobbett commented on the decline of tabes mesenterica, out of all proportion to the fall of tuberculosis mortality of other forms of the disease. An older generation described a condition known as tuberculosis of the sole of the foot in young children. It is said to have disappeared with the improvement in social conditions and the disappearance of the barefoot urchin of the slums. Certain forms of bone and joint tuberculosis seem also to be less prevalent, notably tuberculous dactylitis, and I feel sure there are fewer lupus cases to be seen about the streets than there were. In the south of England too there is a general impression I find amongst physicians that tuberculous broncho-pneumonia of childhood is a less prevalent disease than it was. Perhaps we must not rely too much on general impressions; for fashions in diagnosis are apt to change with the years quite as readily as diseases; but, when every allowance is made for this, I think we can look to the future with some satisfaction. Tuberculosis will not disappear from our midst in our lifetime, but slowly and surely the mortality curve is falling and the age at death receding to the later years.

THE COMPLEMENT-FIXATION REACTION IN INFLUENZA

By Wilson Smith, M.D. Manch., Dipl. Bact. Manch.

MEMBER OF THE SCIENTIFIC STAFF OF THE NATIONAL INSTITUTE FOR MEDICAL RESEARCH, HAMPSTEAD, LONDON

Shortly after the isolation of influenza virus from human cases (Smith, Andrewes, and Laidlaw, 1933), it was realised that an in-vitro reaction for the estimation of serum antibodies would be invaluable, and many attempts were made in this direction. The later discovery that mice could be infected with virus (Andrewes, Laidlaw, and Smith, 1934) provided a mouse-protection test for serum assay which diverted attention from the in-vitro reactions for some time. The mouse-protection test, however, requires very large numbers of animals and has, moreover, a large margin of error due to varying susceptibility of mice, so that renewed attempts were made to utilise the complement-fixation reaction. Some measure of success was attained as soon as it was found that a long period of fixation prior to the addition of the sensitised blood corpuscles is essential.

The early unsuccessful experiments were made with antigens prepared from various tissues of infected ferrets and sera from recovered ferrets. It is extremely probable that successful reactions could now be demonstrated with these reagents, but as many ferret antigens are very anticomplementary and the influenzal horse sera which have been adopted as standards in all mouse-protection tests contain immune bodies to ferret tissue proteins, it was decided to concentrate attention upon mouse virus and tissue-culture virus as sources of antigen. Culture antigen is most generally useful. but mouse lung antigen has advantages for certain types of experiment.

An experiment was made in which culture antigen and mouse lung antigen were each tested with influenza immune horse and normal horse sera against various doses of complement. Duplicate sets of mixtures were prepared; one set was kept in the water bath at 38° C. for two hours before the addition of sensitised cells, the other was kept in the ice chest overnight following two hours' fixation at 38° C. The results given in Table I. show clearly the necessity for a prolonged fixation time in the case of both antigens.

An experiment in which various doses of two immune sera were tested against various doses of complement showed that serum titrations could be effected by using a constant amount of either reagent with graded doses of the other. The method of testing several doses of serum against a constant amount of complement appeared, however, to be much more sensitive, and on general principles might be expected to give a truer measure of the antibody content of a serum. Finally, the following technique was evolved and used, with but minor variations, in all the experiments recorded with both human and experimental animal sera.

TABLE I.—SHOWING THE NECESSITY FOR PROLONGED FIXATION

Fixation.	Antigen, 0·2 c.cm. dose.	Serum, 0·2 c.cm. dose.	M.H.D.'s of complement.				
			2	4	6	8	10
Two hours water bath, 38° C.	Culture.	Immune horse.	+ + + +	0	0	0	0
		Normal "	+ +	0	0	0	0
	Mouse lung.	Immune "	+ + + +	0	0	0	0
		Normal "	+ +	0	0	0	0
Two hours water bath, 38° C. + Overnight in ice box.	Culture.	Immune "	+ + + +	+ + + +	+ + + +	+ + + +	+ + +
		Normal "	+ +	0	0	0	0
	Mouse lung.	Immune "	+ + + +	+ + + +	+ + + +	+ +	+
		Normal "	+ +	0	0	0	0

+ + + + = complete fixation. 0 = complete hæmolysis. Controls of each antigen alone and each serum alone with 2 M.H.D. complement gave complete hæmolysis with both short and long fixation.

TECHNIQUE

Culture antigen.—Cultures of influenza virus in a medium of minced chick embryo and Tyrode's solution are made by the method described by Smith (1936). Several Carrel flask cultures are pooled. The tissue fragments are ground with powdered glass in a mortar and emulsified in the fluid portion of the culture previously removed by pipette. The emulsion is centrifuged for 10 minutes at 3000–4000 r.p.m. The supernatant fluid, after the addition of merthiolate to a concentration of 1 in 20,000 in order to prevent bacterial growth, forms the antigen. It is used in a dose of 0·1 c.cm. or 0·2 c.cm., depending upon the degree of anticomplementary activity. Stored in the ice box it retains its antigenic potency for many weeks but must be recentrifuged when a deposit forms at the bottom of the container.

Mouse lung antigen.—A 5 per cent. emulsion of infected mouse lung is centrifuged, clarified, and filtered through a gradocol membrane, as described in an earlier paper (Smith, Andrewes, and Laidlaw, 1935). The filtrate is used in a dose of 0·1 c.cm. or 0·2 c.cm. when not more than two or three days old, and without the addition of merthiolate.

Sera.—An immune horse-serum is included in every test as a standard. Serum IH 2 is the serum of a horse immunised exclusively with human strain virus, IH 4 that of a horse immunised with the virus of swine influenza (Shope). In both cases, the virus suspensions used for immunisation were made from tissues of infected ferrets so that the sera contain antibodies against ferret proteins.

All sera are first clarified as much as possible by centrifugation and then inactivated by heating to 56° C. for half an hour. Merthiolate (1/20,000) may be added if it is desired to store the sera for future use.

Complement.—Fresh guinea-pig serum is titrated each day and a dilution made such that 0·1 c.cm. contains 1 M.H.D. (minimum hæmolytic dose). Usually 4 M.H.D., occasionally 3 M.H.D., are used in the test.

Sensitised cells.—The test dose consists of 1 c.cm. of a sensitised 2·5 per cent. suspension of sheep erythrocytes—each c.cm. contains 5 M.H.D. of hæmolytic amboceptor.

SETTING UP OF THE TEST

Falling doses of each serum from 0·2 c.cm. to 0·0125 c.cm. are mixed with 4 M.H.D. complement, either 0·1 c.cm. or 0·2 c.cm. antigen, and sufficient saline to make a total volume of 1 c.cm. The reagents are added in the order saline, complement, serum, antigen, and are mixed by inversion of each tube. The set is incubated in a water bath at 37° C. to 40° C. for two hours and then kept overnight (usually 18 hours) in the ice chest. The sensitised R.B.Cs. are added, mixed by inversion, and the tubes placed in the water bath for half an hour. The result is read at the end of this period, and again after a sufficient time in the ice chest, to allow sedimentation of non-hæmolysed blood corpuscles.

The controls, always included, consist of 0·2 c.cm. of each serum, and the dose of antigen used, each with both 1 and 2 M.H.D. of complement; also 1 M.H.D. of complement with saline. Many sera and all antigens are found to inhibit complete lysis of the R.B.Cs. with 1 M.H.D., but usually fail to do so with 2 M.H.D. of complement.

The Correlation Between Complement-fixation and Mouse-protection Tests with Human Sera

Many human sera have been assayed in terms of the standard horse-serum IH 2, by both mouse-protection and complement-fixation tests. The mouse-protection tests were done by the method fully described by Andrewes, Laidlaw, and Smith (1935), in which dilutions of the sera to be tested and the standard serum are mixed with a fixed quantity of virus filtrate prepared from infected mouse lungs and the mixtures inoculated into groups of mice by intranasal instillation under ether anæsthesia. The estimation of serum potency is based upon the effects of the different dilutions in preventing and limiting influenzal lung lesions in the groups of mice.

The results of five experiments are summarised in Table II. In all these experiments culture antigen from human strain virus was used. Many of the C.F. tests (complement fixation) were done before the results of the corresponding mouse-protection tests were known. With most sera there was a close agreement between the antibody values obtained by the two methods, but there are notable exceptions. It is evident that C.F. fails to detect small amounts of antibody which are just demonstrable by the protection test; all the sera graded as less than S/125 failed to show any fixation. Three sera, P, S, and B in experiments 2 and 3, gave no fixation in spite of having moderate amounts of neutralising antibody. Two of these, P and B, call for special comment. The donors were men who possessed no demonstrable neutralising antibodies before receiving an inoculation of formolised influenza virus vaccine. The artificial immunisation led to the appearance of these antibodies (Andrewes and Smith, 1936), but the sera still failed to fix complement. The possible significance of this phenomenon is discussed below.

TABLE II.—CORRELATION BETWEEN COMPLEMENT-FIXATION AND MOUSE-PROTECTION TESTS WITH HUMAN SERA

Expt.	Serum.	Complement fixation. Serum dose c.cm.						Potency measured by mouse-protection test.
		0·2	0·15	0·1	0·05	0·025	0·0125	
1	IH 2	+ + + +	+ + + +	+ + + +	+ + + +	+ + +	..	S
	A	+ + + +	+ + + +	+ + + +	+ + +	+ +	..	S/5
	C	+ + + +	+ + +	+ +	tr.	0	..	S/5–S/25
	D	+ + +	+ + +	+ +	+	0	..	S/5–S/25
	E	0	0	0	0	0	..	<S/125
	F	0	0	0	0	0	..	<S/125
	G	0	0	0	0	0	..	<S/125
	WS Before immunisation.	+ + +	+ +	tr.	0	..	..	S/25–S/125
	„ First sample	+ + + +	+ + +	+ + +	+	..	..	S/5–S/25
	„ Second after	+ + + +	+ + +	+ + +	+	..	..	S/5–S/25
	„ Third immunisation.	+ + +	+ + +	+ +	tr.	..	..	S/5–S/25
2	IH 2	+ + + +	..	+ + + +	+ + + +	+ +	0	S
	P After immunisation.	0	..	0	0	0	0	S/5–S/25
	S	tr.	..	0	0	0	0	S/25
3	IH 2	+ + + +	..	+ + + +	+ + +	+	0	S
	B Before immunisation.	0	..	0	..	..	..	<S/125
	„ First sample after	tr.	..	0	0	0	0	S/5
	„ Second immunisation.	0	..	0	0	0	0	S/5
4	IH 2	+ + + +	+ + + +	+ + + +	+ + +	..	..	S
	B Before immunisation.	0	0	0	0	..	..	<S/125
	WS	+ +	+ +	+	tr.	..	..	S/25–S/125
	S-H Before infection.	0	..	..	..	..	..	<S/125
	S-H First sample after infection.	+ + + +	+ + + +	+ + +	+ +	..	..	S–S/5
5	IH 2	+ + + +	+ + + +	+ + + +	+ +	..	..	S
	S-H Fourth sample after infection.	+ + + +	+ + +	tr.	0	..	..	S/5–S/25

S = potency equal to standard horse-serum IH 2. S/5 = potency one-fifth standard, &c.

In contrast to these, the samples of WS serum (expts. 1 and 4) showed an increase of both protective and complement-fixing antibodies following artificial immunisation, but in this case there was a considerable degree of basic immunity before vaccine was administered. The S-H serum samples (expts. 4 and 5) were obtained from a man before and after a typical attack of influenza, believed to have been contracted from infected ferrets (Smith and Stuart-Harris, 1936). The illness evidently led to a striking increase of circulating antibody demonstrable by either test. Apart from the samples from artificially immunised men, only one serum (S, expt. 2) showed an entire lack of correlation between the results obtained by the two methods of test.

Use of C.F. Reaction in Following the Course of Immunisation of Experimental Animals

When preparing an immune serum in an experimental animal it is both costly and time-consuming to use the mouse-protection test for the titration of serum samples; moreover, the best moment to harvest the serum may be missed owing to the inevitable delay of several days before the results of a titration are available. The experiment summarised in Table III. shows how useful the more rapid and economical complement-fixation test may be. A goat received the following treatment.

July 17th, 1936: Normal serum obtained.

August 11th: Inoculated subcutaneously with 12 c.cm. 5 per cent. mouse lung suspension.

August 14th: Inoculated subcutaneously with 19 c.cm. 10 per cent. mouse lung suspension.

August 20th: First immune serum sample obtained.

Sept. 29th: Inoculated subcutaneously with 28 c.cm. 10 per cent. *mouse lung suspension.*

Oct. 2nd: Second immune serum sample obtained. *Inoculated subcutaneously with 20 c.cm. 10 per cent.* mouse lung suspension.

Oct. 5th: *Third immune serum sample obtained.*

Oct. 8th: Serum harvested.

It will be seen that the complement-fixation tests were an adequate measure of the response to immunisation. The early inoculations apparently laid down a basic immunity so that further treatment after a rest of six weeks led to a rapid rise of virus neutralising antibodies in the circulation. The in-vitro test enabled serum to be harvested some days before the result of the last mouse-protection test was available.

Reciprocal Tests with Human and Swine Strain Reagents

It is known that many adult human sera contain antibodies to the swine strain of influenza virus, but none to the human strain, and this has led to the suggestion that swine strain virus may have been responsible for epidemics of influenza in the past

TABLE III.—THE RISE OF ANTIBODIES IN SERUM OF IMMUNISED GOAT

Serum.	Mouse-protection test. Final dilution of serum.				Complement-fixation test. Dose of serum c.cm.				
	½	1/10	1/50	1/250	0·2	0·1	0·05	0·025	0·0125
IH 2	..	0	0	1	+ + + +	+ + + +	+ + + +	+ + +	tr.
Goat. Normal serum	3	3	..	..	0	0	0	0	0
„ First immune sample ..	0	3	3	2	tr.	tr.	tr.	0	0
„ Second „ „ ..	..	0	3	3	+ + +	+ +	0	0	0
„ Third „ „ ..	..	0	0	0	+ + + +	+ + + +	+ + +	+ +	+

Figures under mouse-protection test indicate the number of mice in each group of three showing lung lesions.

(Laidlaw, 1935). There is no doubt that the two strains possess cert[illegible] in common, but they can be [illegible] by mouse-protection tests with the appropriate immune horse sera. It was found, however, that serum III 2 gave better complement fixation than serum III 4 with both human and swine strain culture antigens. The result was so unexpected that it was thought that cultivation in chicken embryo medium must have caused a change in the antigenic constitution of the viruses of such nature that strain specificity was lost. The hypothesis was tested by the experiment recorded in Table IV. It is clear that each strain is best neutralised by its homologous horse-serum in mouse-protection tests, but gives better *complement fixation with the human strain anti-serum* III 2. A few experiments not included in the Table have indicated, however, that swine strain antiserum III 4 gives more fixation with swine strain antigen than it does with human strain antigen, *although inferior to serum III 2 against either antigen.*

TABLE IV.—RECIPROCAL TESTS WITH HUMAN AND SWINE STRAIN REAGENTS

Antigen.	Serum.	Mouse-protection test. Dilution of serum.			Complement-fixation test. Dose of serum c.cm.				
		1/10	1/50	1/250	0·2	0·1	0·05	0·025	0·0125
Human strain culture ..	III 2 III 4	0 3	1 3	2 3	+ + + + +	+ + + + tr.	+ + + + 0	+ + 0	0 0
Swine strain culture ..	III 2 III 4	1 0	0 0	3 1	+ + + + +	+ + + + tr.	+ + + + 0	+ + 0	0 0
Swine strain .. Mouse lung filtrate ..	III 2 III 4	2 0	2 0	3 3	+ + + + + +	+ + + + + +	+ + tr.	0 0	0 0

Discussion

The lack of correlation between complement-fixation and mouse-protection tests with some samples of human sera suggests that influenza viruses are antigenically complex and call forth in infected animals the production of at least two antibodies of which only one is concerned with the complement-fixation reaction, although both may possibly assist in virus neutralisation. The failure of the in-vitro test to differentiate between human and swine virus strains and their homologous antisera lends support to this view. As a tentative hypothesis which will demand much further work for its substantiation, it may be suggested that a group antigen, common to the two strains, is responsible for the partial degree of cross-immunity which follows infection in ferrets and mice, produces an antibody with some neutralising power against either strain and is able to fix complement in the presence of this antibody. Other antigens confer strain specificity and produce strain specific neutralising antibodies but *do not enter* into the complement-fixation reaction under the experimental conditions so far investigated.

The failure of sera from artificially immunised men to fix complement although possessed of demonstrable virus neutralising power may depend upon the slower production of the group antibody postulated. In the case of some other virus diseases, for example, vaccinia in rabbits, the antibodies demonstrable by in-vitro reactions appear later than those demonstrable by in-vivo neutralisation tests.

The fact remains that in the majority of human and animal sera examined, the estimation of complement fixing antibody gives a reasonably accurate measure of the protective power. Therefore, although the lack of correlation in a few cases limits the practical usefulness of the in-vitro test, it should prove of value in cases where the time factor is of importance and where suitable numbers of mice are not available for protection tests. It is hoped that it will also assist in the analysis of the antigenic structure of influenza virus strains of different origin.

Summary

1. A complement-fixation test is described for the titration of influenzal antibodies in the sera of men and experimental animals.

2. With the majority of sera the results given by complement-fixation and mouse-protection tests show close correlation. A few sera however fail to show such correlation.

3. *Antibodies against human and swine strain* viruses are not differentiated by the in-vitro test.

4. The possible significance of the results is discussed.

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INHIBITORY EFFECT OF TESTOSTERONE PROPIONATE ON EXPERIMENTAL PROSTATIC ENLARGEMENT

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AT least three endocrinological theories of the causation of benign enlargement of the prostate have been suggested during the past four years.[1] Although mutually contradictory in essentials, these theories nevertheless in common suggest the administration of "male hormone" as the correct treatment for the disease. A potent synthetic male hormone, testosterone propionate, has recently been prepared,[2] but at present there is a lack of information about the amounts which should be used either in the treatment of enlarged prostate or in the treatment of other clinical conditions in which the hormone is indicated. Dosage needs to be controlled not only on the basis of clinical experience, but also in respect to indices of biological activity additional to that of the hormone's capacity to influence the growth of a capon's comb or of a male rodent's reproductive organs. Information of the first kind is as yet unavailable. The present paper gives the results of certain experiments bearing on the second question.

These experiments relate more directly to the thesis that benign enlargement of the prostate may result from the action of œstrogenic substances than to any other of the suggested ætiologies of the disease. It is known that the daily injection into an immature male rhesus monkey of an adequate amount of œstrone (circa 100γ) will regularly result, within 14 days, in the general enlargement of its prostate, in a relative diminution of the number of prostatic glands, and in stratification of the epithelium of the uterus masculinus. Other changes which are induced within the same period include (*a*) stratification of the epithelium of all except the uppermost part of the urethra, (*b*) growth of the fibromuscular tissue and alterations in the epithelium of the seminal vesicles, and (*c*) swelling of the scrotal and surrounding skin. A previous experimental study [3] showed that these changes can be inhibited if an adequate amount of androstanediol is given simultaneously with the œstrone; it was also found that even after changes had been produced by the previous administration of œstrone, the normal condition of the prostate could be restored, in spite of the continued daily injection of œstrone, by the administration of androstanediol. The present experiments with testosterone and testosterone propionate were planned on the same basis as those just referred to, with this exception, that testosterone propionate is known to have a prolonged action,[2] and that an attempt was made to discover how widely injections of this compound can be spaced, while retaining its inhibitory influence.

MATERIAL AND METHODS

The experiments reported in this paper were performed on eleven immature male rhesus monkeys (*Macaca mulatta*), whose weights and ages are given in the accompanying Table. Estimates of age are based on the records of body-weight and dentition published by Schultz.[4]

Every animal was injected once daily, for periods varying between 10 and 21 days, with an oil solution containing 100γ of crystalline œstrone. All monkeys listed in the Table were also injected with a male hormone compound. Those marked "a" in columns 1 and 6 received a single injection of an oil solution of crystalline testosterone propionate on the first day of each course of injections, the amount given being noted in the Table. Those marked "b" received testosterone propionate on both the first and eighth days of the course of injections. The animal marked "c" (177) received 2·5 mg. of testosterone daily, and that marked "d" (179) 5 mg. of the same substance on alternate days. The last animal in the Table (131) marked "e," was given 100 mg. of androstanediol benzoate in oil on the first day of injections.

Preparations from normal rhesus monkeys of comparable ages, and from male monkeys that had been injected with similar amounts of œstrone alone, were available as controls. Tissues were removed on the day following the last injection. Histological preparations, cut at 10μ, were made of the prostate, seminal vesicles, and of several levels of the urethra. The sections were stained with Meyer's hæmalum and eosin.

EXPERIMENTAL RESULTS

External Changes.—In the study to which I have already referred,[3] on the suppression of the prostatic effects of œstrone, qualitative estimations of the degree of circumgenital cutaneous swelling occasioned by œstrone were indicated by the numerals 0–5, 5 representing the maximum external change observed in control animals receiving œstrone alone. In the accompanying Table the extent of swelling that occurred in the animals used in the present series of experiments is indicated according to the same scale.

Administration of Œstrone and Testosterone Propionate to Immature Male Rhesus Monkeys

No. (OM).	Weight (g.).	Approx. age in months.	Days injected.	Œstrone injected daily (mg.).	Total testosterone propionate (a, b) or testosterone (c, d) or androstanediol benzoate (e) injected (mg.).	Œstrone changes in prostate and urethra (deg. 0–5).	External scrotal &c., response (deg. 0–5).
(a) 160	3220	40	14	0·1	50 (a)	0–1	1
(a) 173	4400	50	14	0·2	50 (a)	0–1	4
(a) 159	3210	40	10	0·1	25 (a)	0–1	0–1
(a) 174	5060	51	21	0·1	50 (a)	3	5
(b) 162	2800	24	14	0·1	50 (b)	0	1
(b) 161	3060	32	14	0·1	25 (b)	0	2
(b) 175	4220	40	14	0·1	25 (b)	0	3–4
(b) 176	3330	34	14	0·1	10 (b)	0	3
(c) 177	2860	32	14	0·1	35 (c)	1	1
(d) 179	2350	28	14	0·1	35 (d)	0–1	1
(e) 131	4180	42	14	0·1	100 (e)	3	4

The œstrone was given daily. Animals marked (a) in columns 1 and 6 were given testosterone propionate in a single injection on the first day of each course of injections. Those marked (b) were given testosterone propionate on both the first and eighth days. The animal marked (c) (No. 177) received 2·5 mg. testosterone daily, and that marked (d) (No. 179) 5 mg. testosterone on alternate days. No. 131 (e) was given androstanediol benzoate on the first day of injections.

The first external response of an immature male rhesus monkey to the injection of œstrone alone is usually noticed about the fifth or sixth day, and comprises reddening of the skin of the base of the tail, immediately dorsal to the anus. The anus then begins to swell, and within two to three days reaches a maximum of swelling, which is usually resorbed by about the thirteenth or fourteenth day. The scrotum begins to swell about the eighth day of injections, and as a rule is still actively expanding by the fifteenth day. The skin adjacent to the anus and scrotum also thickens, swells slightly, and reddens. In grading the swelling that occurs, attention is paid to the degree of change shown both during and at the end of the period of injections. It will be seen from the Table that some external change occurred in all the animals that were injected with both œstrone and male hormone. In three animals the changes were very slight, and there can be no doubt that their suppression was due to the male hormone that was also administered.

The extent of the external response was approximately in inverse ratio to the relative amount of testosterone propionate administered, the latter being estimated in relation to the amount of œstrone given, and in relation to the period over which injections were continued. Individual variations also occurred, as for example between Nos. 175 and 161, both of which received the same injections.

Prostatic and Urethral Changes.—The extent to which the usual prostatic and urethral effects of œstrone were suppressed is indicated in column 7 of the Table by the numerals 0–5, 5 representing the maximum effect observed in control monkeys receiving corresponding amounts of œstrone alone.

The prostates and urethras of the four monkeys which were injected with œstrone daily and with testosterone propionate on two occasions (Nos. 162, 161, 175, 176) do not show any of the effects which normally follow the injection of œstrone. On the other hand the histological picture they present is characteristic of prostates that have been acted on by male hormone. The utricular and urethral epithelia appear normal. The prostatic glands are much bigger and much more active than those of normal animals of comparable age. The dimensions of the prostates are also increased.

The prostates of Nos. 160, 173, and 159 also showed the effects of stimulation by male hormone. In addition all three showed a faintly perceptible thickening of the epithelium of the distal part of the cavernous urethra, a finding which suggests the beginning of an internal response to œstrone. No epithelial change had occurred either in the uterus masculinus, or in the membranous and prostatic parts of the urethra.

The prostate of No. 174 was peculiar, in so far as the epithelium of its uterus masculinus, like that of the urethra, had reacted in moderate degree to the œstrone that had been injected, whereas the prostatic glands and the general prostatic stroma showed no signs of having been affected. Indeed, compared with a prostate from a normal animal of comparable age, the glands appeared hyperactive.

The prostates of the two animals that had been injected with œstrone and testosterone showed almost no changes that could be associated with the male hormone; on the other hand, they also showed few that had resulted from the œstrone. In both there was slight thickening of the epithelium of the uterus masculinus and urethra, and in one, No. 177, the prostatic glands were relatively reduced in number—as occurs when œstrone alone is injected. Both prostates were enlarged.

The prostate of the animal, No. 131, that received a single injection of androstanediol benzoate on the first day of its course of œstrone injections was also enlarged, and showed the typical changes which œstrone alone produces. The male hormone had produced no effects characteristic of itself, and also failed to inhibit those of the œstrone.

DISCUSSION

Testosterone propionate is much more effective than testosterone in suppressing the effects that œstrone has on the prostate of the rhesus monkey. Thus a total of 10 mg. of the propionate given in two injections at weekly intervals proved more effective from this point of view than 35 mg. of testosterone administered in 14 equal daily doses. This finding is fully in keeping with that of Miescher and his co-workers,[2] and of Parkes.[2] The index of relative potency studied by these workers was the capacity of the compounds to increase the weights of the prostate and seminal vesicles of castrated rats. The failure of a single dose of androstanediol benzoate given at the beginning of a 14-day course of œstrone injections (No. 131) to suppress the effects of the œstrone is also not surprising in view of Parkes's finding that this preparation has a negligible effect on the growth of the rat's accessory reproductive organs as few as 5 days after its administration.[2] It may be noted that the 100 mg. of androstanediol benzoate given No. 131 are equivalent to 70 mg. of free androstanediol, and that this amount of androstanediol divided into 14 equal daily doses will suppress the prostatic effects of 100γ of œstrone given daily for 14 days.[3]

Androstanediol suppresses the prostatic effects of œstrone when administered in a proportion of 50 to 1. Progesterone failed to do so in a proportion of 20 to 1.[3] A ratio of at least 50 to 1 was found necessary in order to inhibit the cornifying effect of 6 rat units of œstrin when injected over a period of 6 days.[5] More recently it has been shown that the action of progesterone on the endometrium of the rabbit is completely inhibited by 1/75th of its weight of œstrone, and also that some inhibition may still be effected by œstrone in a proportion of 1 to 200.[6] The experiments reported in this paper show that testosterone propionate can effectively inhibit the prostatic effects of œstrone when given in a ratio of 7 to 1, and it is possible that an even lower proportion may be found to be effective.*

A ratio as low as this does not, however, suppress the external effects which œstrone produces, and the present experiments suggest that the circumgenital skin changes would not be inhibited unless the ratio of testosterone propionate to œstrone were in the neighbourhood of 50 to 1. The previous experiments with androstanediol[3] also showed that this area of skin is much more sensitive to œstrone than is either the urethra or prostate. The greater reactivity of the skin is, however, only temporary, for when the action of œstrone is more prolonged than it was in the present experiments, the circumgenital skin ceases to respond, whereas the urethra and prostate become profoundly altered under the influence of the œstrogenic hormone. It is to be noted in this connexion that when œstrone is given simultaneously with male hormone, the separate effects they produce vary considerably. The anatomical and histological picture might be entirely representative of the action of the œstrogenic hormone. On the other hand, the effects of this hormone might be limited to the external skin only, or to the skin and distal part of the urethra, or to the upper urethra, uterus masculinus, and prostate as well, these different pictures of œstrogenic action being accompanied by equally varying pictures of male hormone action (cf. No. 174).

Weekly injections of an adequate amount of testosterone propionate fully protect the prostate and urethra from the effects of œstrone even when the latter is administered daily. Fortnightly injections, in a proportion of about 20 to 1 (Nos. 179 and 159), are almost as effective. Three-weekly injections are not effective from this point of view (No. 174). This prolonged action of testosterone propionate in suppressing the effects of œstrone is in keeping with the prolonged effect it has on the growth of the accessory reproductive organs of the rat.[2]

This fact is important from the point of view of the clinical use of the compound. It seems highly unlikely that injections need to be given more frequently than once a week, and there can be little doubt that injections spaced as widely as once a fortnight would also prove effective. The present experiments also show that no adverse results follow the injection of as much as 50 mg. of testosterone propionate in a single dose.

SUMMARY

Testosterone propionate will inhibit the effects which daily injections of œstrone have on the prostate and urethra of immature rhesus monkeys if the total amount given (divided into weekly doses) is equivalent by weight to seven or more times the amount of œstrone that is administered. According to this index of activity, testosterone propionate is a much more potent compound than either testosterone, androstanediol, or progesterone. Its action is still powerful as long as a fortnight after its injection, and it seems likely that in clinical work the hormone need not be given more frequently than at either weekly or fortnightly intervals.

The testosterone and testosterone propionate used in these experiments were generously provided by Dr. K.

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* Attempts to counteract the prostatic effects of œstrone both with cholesterol and with epicholestanal have been continued,[3] but have been rewarded with but slight success. The possibility that substances which are not sex hormones can neutralise the effects of œstrogenic hormones is important from more than one point of view, and not least from that of the recent demonstration of the œstrogenic power of compounds which are not known to be related chemically to the natural sex hormones.[7]

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COMPLEMENT TITRE IN ACUTE NEPHRITIS

WITH SPECIAL REFERENCE TO CAUSATION BY REVERSED ANAPHYLAXIS *

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THE complement of the blood has been defined by Muir as "that labile substance of normal serum which is taken up by the combination of an antigen and its anti-substance (immune body)." When such a combination takes place in vitro the complement is "deviated"—i.e., it is no longer free. It seems reasonable to suppose that, if the same thing happens in vivo, changes in the free complement might be detected in diseases where antigen-antibody combination occurs. Browning (1912–13; 1931) suggests that such changes are in fact slight and of little significance. "In general," he states, "the changes in disease have thrown little light on the question of the origin or function of complement"; and the reverse is presumably equally true. Nevertheless I have felt that if gross antibody-antigen reactions are taking place in the body, then there should be changes in the complement content of the blood, and that the recognition of these changes would in turn provide evidence as to the existence of antibody-antigen reactions in man.

For the purpose of this investigation a method was elaborated for determining the titre of complement which appeared more accurate than those commonly employed and which also had the advantage that it allowed the results to be recorded as percentages.

Venous samples of blood were collected, using a syringe with a relatively wide-bore needle (No. 12), and were allowed to clot in previously autoclaved test-tubes for 4–5 hours before the actual test was carried out. In this 0·1 c.cm. of the serum so obtained was added to 1 c.cm. of a 3 per cent. suspension of sheep red blood-cells. These had previously been washed and suspended in 0·85 per cent. saline and sensitised by the addition of 0·1 c.cm. of standard Immune Body (B. & W.) to every 20 c.cm. of the suspension. The mixtures were shaken and placed in an incubator at 37° C. for one hour. They were then spun down in a centrifuge at approximately 3000 revolutions per minute for three minutes. 0·5 c.cm. of the supernatant fluid was added to 1 c.cm. of decinormal HCl, and the hæmoglobin present estimated exactly five minutes later in a Zeiss hæmometer. This hæmometer expresses its results in terms either of grammes or of percentages, and we adopted the latter.

In order to make them comparable the total amount of hæmoglobin in the suspension which had previously been adjusted to contain approximately 100 per cent., and never exceeded 120 per cent., was determined, and the figures obtained in each experiment adjusted to a percentage. The tests were invariably carried out in small batches of 6–8 samples, most of which were from cases in whom one would expect a priori that the complement would be normal.

Figs. 1 and 2 summarise the results in this, the preliminary, investigation. Often several determinations were made, at weekly intervals, but for the purpose of these charts the first is the one recorded. The age has been indicated in every case, and also the sex, which (owing to the distribution of the beds in the hospital) was usually male. The cases have been subdivided into several main groups (Fig. 1) and one large miscellaneous group (Fig. 2). It is apparent that in the great majority of cases (as in di Renzo's series, 1929) the level of blood complement was remarkably constant, the percentage, according to our method, being somewhere between 80 and 90. Even with a low red cell count (as in the four cases of pernicious anæmia where the counts at the time of taking the complement were 1·44, 1·85, 1·04, and 2·4 millions), the complement level remained high. There were, on the other hand, certain conditions in which the complement was low: thus in many rheumatic cases the complement diminished, and in some cases of nephritis it almost disappeared. It is with the significance of the changes in this last group that this paper is chiefly concerned.

CASES OF NEPHRITIS

CASE 1.—A boy of 15 was admitted under Dr. George Hall on Dec. 12th, 1935. He had been ill for several weeks with a cough, sore-throat, and cold in the head, and for the past week or ten days had been troubled with headaches and drowsiness. Three days before admission he suddenly became blind. On admission he was found to be drowsy, but he could be roused and was rational. He was pale, his face was slightly puffy, and there was very slight œdema of his feet. His pulse was full and bounding, and his blood pressure 180 systolic and 100 diastolic. His pupils were widely dilated, the retinæ redder than normal, and the veins were full. Though he was quite blind there were no other gross findings in the eyes. He passed very little urine, and this contained large quantities of albumin, red blood-cells, pus cells, and casts. His blood-urea was 87 mg. per 100 c.cm., and his cerebro-spinal fluid was otherwise normal. Within three days of admission he recovered his eyesight, and his nephritis gradually cleared up. At the time of his discharge his standard blood-urea clearance (corrected for body size) was 21·2 c.cm. per minute, or 39 per cent. of normal average, but two months later, on April 24th, 1936, it had risen to 69·5 c.cm. per minute, or 93 per cent. of normal average.

Fig. 3 illustrates the changes in this child.

CASE 2.—A boy, aged 10, was admitted under Dr. George Hall on Feb. 11th, 1936. Three weeks before his illness he had had a sore-throat. He had been in bed for two weeks before admission, and the state of his urine had been noted by his doctor on the third day of his illness. On admission he felt quite well and was cheerful and lively. His face was slightly puffy, and there was a very slight œdema of the feet. In the folds of the skin of his axilla and groins there were patches of dry desquamating skin. The tonsils were slightly enlarged and red. The heart was not enlarged. His blood pressure was 130/85, and his optic discs appeared normal. He had no fever, and his pulse remained steady at about 72. The urine contained large quantities of red

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* Part of a communication made before the Pathological Society of Great Britain and Ireland in June, 1936.

blood-cells, casts, and albumin. He made a complete recovery.

Fig. 4 summarises the changes in this second case and Fig. 5 gives details of a third, in which the mode of onset was in its own way as striking as in the first.

CASE 3.—The patient, a youth of 20, was admitted under Dr. George Hall on May 6th, 1936. He had been perfectly well until a fortnight before admission, when he had had a sore-throat for four days. At the same time he had a bad headache and felt sick and dizzy, so that he had to go to bed. A week after the onset he felt so much better that he was about to return to work, when he noticed that his feet were becoming swollen and his face puffy. This got worse, and when admitted he was semi-conscious and violently resisted examination. His face was puffy and pale. The legs and feet were slightly swollen. The optic discs were clear. The heart was not enlarged, and the sounds were clear and thumping. His blood pressure was 210/130: six days later it had dropped to 190/130, two days later to 170/111, and a week later to 153/95. His urine contained very little albumin; no red blood-cells were present, nor were casts noticed. Despite this at the time of discharge his standard blood-urea clearance was only 30·8 c.cm. per minute, or 50 per cent. of normal average. During the first week of admission the change in his appearance and manner was exceedingly dramatic. His face, which had been pale and puffy, had become thin and sallow, and his manner agreeable.

The relatively slight changes in this youth's urine, the trace of albumin, and the apparent absence of red cells and casts, suggest that the low blood complement was not the result of impaired renal function, and was therefore simply a secondary manifestation, and of no ætiological significance. That this was so was further suggested by the relatively large group of cases of advanced nephritis (Nos. 6–16) in which the blood complement remained high.

The three cases related above have been under observation during the past eight months; their improvement has been maintained and their complement has remained at a normal level.

DISCUSSION

Comment on the above findings is perhaps premature in view of the relatively small numbers involved. Certain facts do however emerge, from which conclusions may be drawn provisionally.

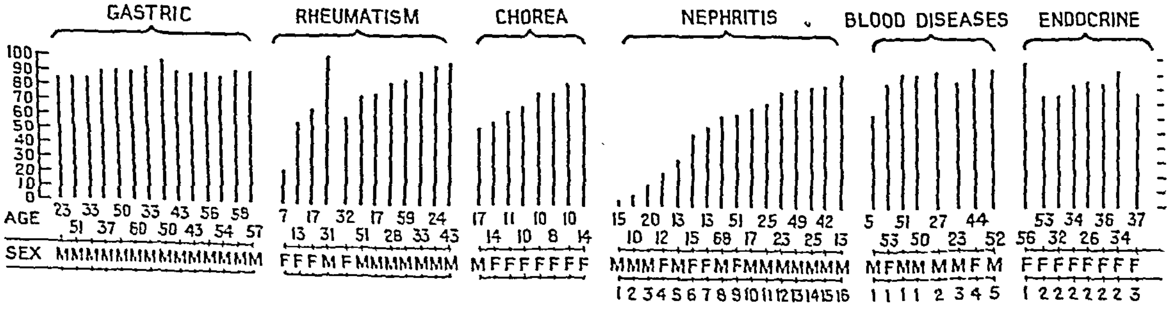

FIG. 1.—Complement titre in patients suffering from various diseases. The 16 nephritis cases are numbered consecutively and some of them are described in the text. The group with blood diseases are subdivided as follows: 1, pernicious anæmia; 2, polycythæmia; 3, hæmophilia; 4, myeloid leukæmia; 5, lymphatic leukæmia. The endocrine disorders were: 1, myxœdema; 2, exophthalmic goitre; 3, Addison's disease.

In all of the cases of typical acute glomerulonephritis investigated at the time of admission to hospital the level of the blood complement was unusually low. A similar drop appears to have been noted by Gunn (1914–15) and by Weil and Bucholz (1931) and is mentioned in passing by Browning (1912–13). It might be attributed simply to humoral changes secondary to renal damage; but against this we have the facts that it was almost equally conspicuous in all these three cases, in which the signs of renal damage varied considerably, and that no drop in complement could be detected in most of the patients with relapses or with chronic interstitial nephritis. In some of these the degree of renal damage was profound: in some the blood proteins were significantly lowered, the albuminuria marked, and the œdema extreme, while in others the blood-urea was as high as 310 mg. per 100 c.cm.

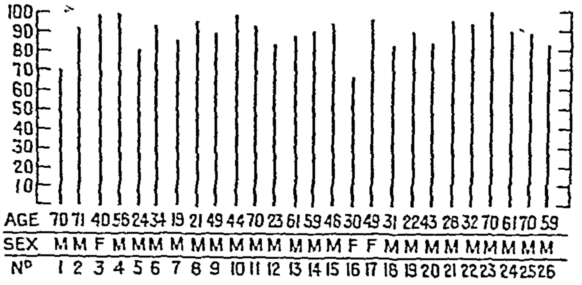

FIG. 2.—Complement titres in a miscellaneous group: 1, diabetes; 2, obstructive jaundice; 3, toxic jaundice; 4, 5, ascites; 6, hæmoptysis; 7, pleural effusion; 8, hydropneumothorax; 9, bronchitis; 10, angioneurotic œdema; 11, neoplasm of prostate; 12, of rectum; 13, of lung; 14, of *brain*; 15, *extreme malignant cachexia*; 16, intracranial tumour; 17, head injury; 18, post-encephalitic parkinsonism; 19, 20, cerebral lues; 21, disseminated sclerosis; 22, subarachnoid hæmorrhage; 23, peripheral neuritis; 24, sciatica; 25, cardio-renal failure; 26, malignant endocarditis.

This extreme fall in the complement did then appear to be associated with the onset of an acute nephritis, and in this series *the difference* between such cases and those in which the condition was chronic or had relapsed was greater than the chart (Fig. 1) would suggest, for Cases 4 and 5, which serve as it were to bridge the gap between Nos. 1–3 and Nos. 6–16, were almost certainly acute but were first seen at a later stage, when it is reasonable to suppose that their complement was beginning to rise. Though it is rather unlikely that this estimation will always enable a distinction to be drawn between primary acute cases and relapses—whose underlying mechanism may sometimes be the same—it may nevertheless, as in Case 3, throw light on what appears to be the closely allied condition of hypertensive encephalopathy.

The extremely low figures for complement were peculiar to these cases of nephritis and not detected in a whole variety of other conditions, though there was also a drop in the rheumatic states. In a group of control patients convalescing from scarlet fever, acute sore-throats, or various febrile states, the blood complement appeared to be within normal limits.

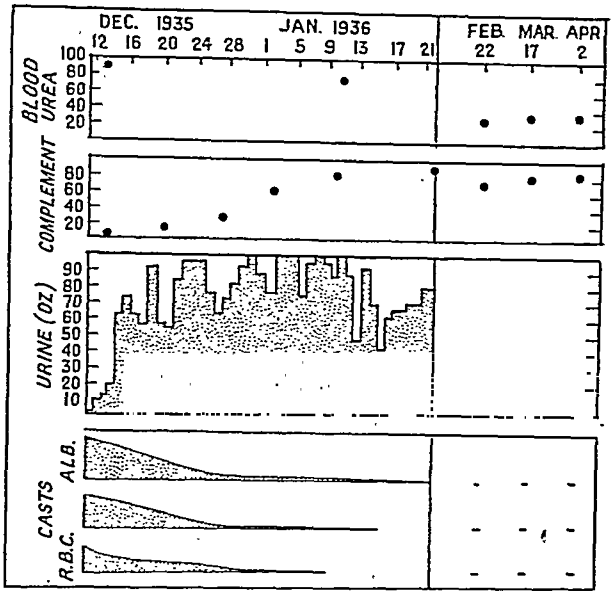

FIG. 3.—Chart illustrating progress in Case 1. Blood-urea in mg. per 100 c.cm. Urine in oz. per day. The three lowest curves show the amount of albumin, casts, and red blood-cells found in the urine.

It is noteworthy that in the three cases I have summarised, in which normal recovery took place, the blood complement gradually rose to a normal level; and, while I have not yet been able to make estimations before an attack of acute nephritis, it seems reasonable to suppose that in these patients the blood complement had been normal before their illness and was reduced with its onset.

Now from Bright's time onwards there have been those who have seen in nephritis not a purely local disorder of the kidneys, but a generalised disorder in which the kidneys are more severely affected than other organs. The extreme extent of the fall in blood complement noted in the cases described above does, I believe, go far to substantiate this view. It is almost inconceivable that a purely localised antigen-antibody reaction should be capable of removing from the circulation almost if not quite all the complement present. (By complement I here mean that fraction which is taken up by the hæmolytic system specified, and which we have reason to believe represents the major part, if not all, the complement present.)

In all three cases the mode of onset was sudden, and in one it was almost dramatic. In all of them the nephritis came on 7–10 days after throat infection. This mode of onset, which is characteristic of the condition, has given rise to the idea that nephritis is comparable in origin to serum disease. As Longcope pointed out in 1929—

> "These time relationships led Schick and later von Pirquet to draw an analogy between the specific complications of scarlet fever, such as acute nephritis, and the occurrence of serum disease following one to two weeks after the therapeutic administration of horse serum. From this analogy they conceived the idea that post-scarlatinal nephritis might be explained as a manifestation of heightened susceptibility of the individual to the infection. Pirquet later used the word *allergy* to signify this particular state" (p. 344).

Much further work has since been carried out by Longcope and his assistants in support of this hypothesis. Friedemann and Deicher (1928) have, however, published observations that at first sight seem to invalidate it. Not only do they find that the Dick reaction disappears as rapidly in patients suffering from post-scarlatinal nephritis as it does in those suffering from uncomplicated scarlet fever, but they have also been able to demonstrate the precocious appearance of antibodies in scarlet fever patients contracting nephritis—antibodies that had the property of protecting mice against infection by streptococci. While the conception of a toxic origin of glomerulonephritis has—as Fishberg (1931) points out—been fortified by the discovery of the scarlatinal streptococcus, with its powerful toxin, by the Dicks (1924) and Dochez (1925), and by Trask and Blake's (1924) demonstration of the presence of this toxin in the urine of patients with scarlet fever, there is on the other hand the well-known fact (Pirquet and Schick, 1905; Mackenzie and Hangar, 1930) that a transitory nephritis, comparable with that seen in acute glomerulonephritis occurs in ordinary serum disease.

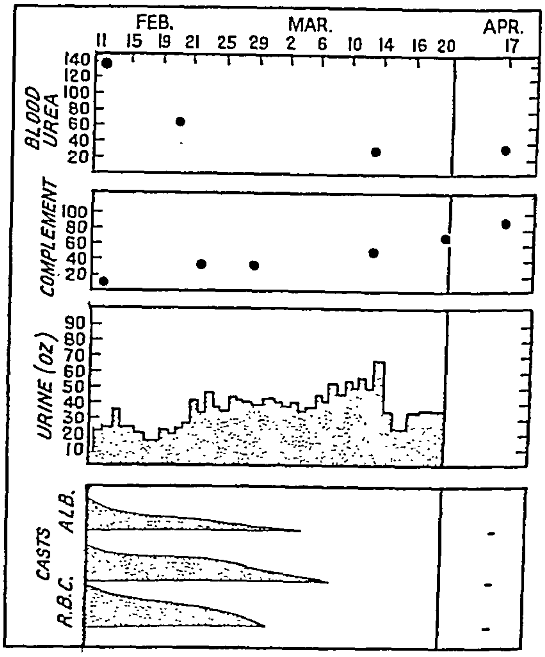

FIG. 4.—Findings in Case 2.

Now Friedberger and Hartoch (1909) showed that a fall in complement titre occurred in guinea-pigs following anaphylactic shock; a fall, too, was described in man in serum disease by Francioni (1908). The work here reported suggests that the onset of acute glomerulonephritis may also be associated with an extensive antibody-antigen reaction. But where extensive tissue damage ensues, as in anaphylactic shock, the tissue cell also plays a fundamental rôle. As Zinsser (1931) puts it, the experimental work he quotes has "left no possible room for questioning the cellular localization of anaphylaxis in the sense that anaphylactic shock depends upon a reaction which takes place specifically between antigen and antibody, either upon the surface or within certain tissue cells." Until recently it has seemed almost certain that this reaction was one between circulating antigen and antibody fixed to, and possibly activated by, the cell. Reversed anaphylaxis—that is, shock dependent on a reaction between circulating antibody and antigen fixed to the cell—was, since it could not be elicited in the guinea-pig, generally held not to occur. Recent work (Kellett, 1935), confirmed and extended by Zinsser and Enders (1936), has however shown that, given proper conditions, shock due to reversed anaphylaxis can be elicited in the guinea-pig. Further work (Kellett, 1936) appears to demonstrate that not only may reversed anaphylaxis be elicited in man, but that this is the mechanism that actually underlies the production of serum disease in man. No such demonstration is here adduced, but it is apparent that this hypothesis of reversed anaphylaxis may furnish an explanation of the clinical findings here summarised. I suggest that acute glomerulonephritis may be a condition, essentially generalised, resulting from a reaction between antibodies elaborated by the body and toxins elaborated by the organisms that played a part in the original infection; the toxins having been fixed in some way to the tissue cells, and more particularly to those of the kidney, in which they will be concentrated and through which they are known to be excreted. The kidneys may therefore be expected to suffer the greatest damage, and as pointed out by Friedemann and Deicher, such glomerulonephritis will arise in patients in whom antibody, possibly prematurely formed, can be demonstrated. In this condition then the hypothesis of reversed anaphylaxis may, as in the closely allied state of serum sickness, resolve many apparent inconsistencies.

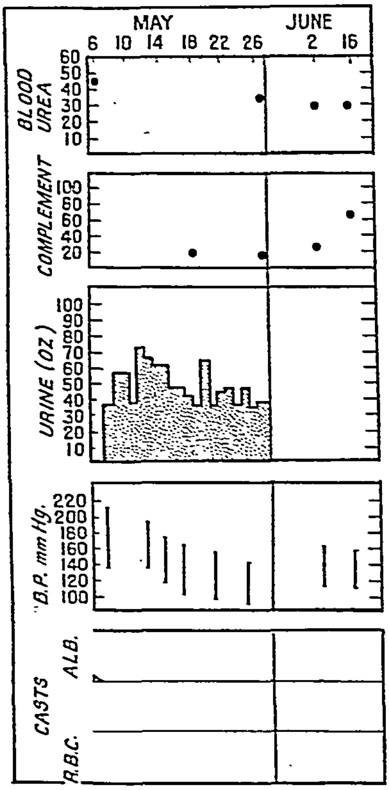

FIG. 5.—Findings in Case 3.

This hypothesis, which I am here advancing, receives independent support from the difficulty that has hitherto been experienced in producing acute glomerulonephritis in animals. It is only recently that Masugi (1934), and in this country Arnott, Kellar, and Matthews (1936), have succeeded in this object, and they have done so by injecting specific anti-organ sera. In their experiments perfused rabbit kidneys were injected into ducks, and the antiserum obtained from the ducks was subsequently reinjected into rabbits. Now this is a procedure which appears to mimic closely the mechanism involved in reversed anaphylaxis; for in reversed anaphylaxis the cell, having absorbed the foreign antigen, may be held to have thereby acquired, partially at any rate, a fresh individuality, which leaves it exposed to the insults offered it by antisera specific for this particular foreign antigen. It is possibly, then, no mere coincidence that the histological findings in these experiments closely resemble those encountered in the acute glomerulonephritis of man.

SUMMARY

A method is described for carrying out blood complement estimations whereby percentage readings are obtained. By this method the blood complement was determined in a variety of cases, in some of which it was followed for several months.

In three cases of acute glomerulonephritis the blood complement was found to be much lower than normal, but gradually returned to normal with recovery. No such drop was noticed in cases of chronic nephritis, even in those showing much albuminuria and raised blood-urea. Reasons are advanced in support of the suggestion that the underlying mechanism of acute glomerulonephritis is one of reversed anaphylaxis.

Estimations of complement may possibly prove useful in distinguishing between types of nephritis and may add to our knowledge of the closely allied state of hypertensive encephalopathy.

It is a pleasure to have this opportunity of thanking Dr. George Hall for permission to publish details of these cases admitted under his care, and also Dr. Drummond, Dr. Nattrass, Dr. Ogilvie, and Dr. Ungley for permission to investigate certain of their cases. My thanks are due too to Dr. Freda Herbert and the department of clinical pathology for their blood-urea estimations, and to Prof. E. M. Dunlop for the facilities so readily granted in his department. This work was carried out with the aid of a grant from the William Dodds research fund.

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AUSCULTATION BY WIRELESS.—The medical aviation department of the U.S.S.R. civil air fleet has devised apparatus for picking up the heart-beats of air-pilots and transmitting them to the ground, where they can be reproduced on a sound film. This apparatus is intended to facilitate the study of the reactions of airmen at high altitudes and under other conditions of stress.

INTRAVENOUS INJECTIONS OF CHARCOAL

IN THE TREATMENT OF ACUTE FEBRILE DISEASE

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The recent use of intravenous charcoal for febrile diseases and skin diseases begins with the work of Conklin (1928), who employed it on a large scale in veterinary medicine in doses of 0·001 g. per kg. body-weight, and also treated one human case of resistant boils. In 1934 and 1935 St.-Jacques reported great success from 1000 intravenous injections in 300 human cases, including acute metrosalpingitis, acute puerperal infection, lung infection, and gonorrhœa. In 1934 Gaudier and Démarez, basing their opinion on 25 varied cases, considered the method worthy of further trial, and in the same year Touraine and Ménétrel claimed very good results from intravenous charcoal in lymphangitis, acute rheumatism, epididymo-orchitis, and septicæmias, and encouraging results in gastric ulcer and *B. coli* infections. It failed to save two patients with puerperal infection, but Macnaughton and Gerrie were able to describe a case of severe septicæmia in which it had seemed helpful.

But work on intravenous charcoal had been done before Conklin. Thus Sollmann in 1926, quoting Sabbatani (1913 and 1914), stated that colloidal carbon was harmless on intravenous injection; while in veterinary medicine intravenous charcoal had been used since 1920 (see Reinhardt 1927). Further, it had been given in 1919 by Bingel to patients with pulmonary tuberculosis. Sommerlad (1932) recommended it highly for this disease, but Harms and Merkel (1931) were against its use, because they found it caused harmful reactions.

CLINICAL INVESTIGATION

I have tested the effects of intravenous charcoal in healthy subjects, in patients with skin diseases, and in 123 patients with fever of various origin. The results in skin diseases, some of which seemed promising, have been reported elsewhere (Davis 1936). My experience has been that 2 per cent. suspensions of charcoal injected intravenously into afebrile subjects often cause a rise of temperature, pulse, and respiration (TPR), frequently associated with chills and rigors. To the febrile patients the charcoal was given in 2 per cent. suspension in gum-saline, saline, or distilled water, but the results did not vary with the vehicle, and wood charcoal did not differ in action from animal charcoal. In half the febrile cases the injections were followed by a rise in TPR within a few hours. Often the temperature reached was the highest since the beginning of the disease, and not infrequently it was the maximum for the whole illness. This rise was often followed by an abrupt fall in temperature to normal, usually temporary; the rise and fall were over in eight hours. In the other half of the cases, the TPR was not significantly altered. Subjective reactions were uncommon, although there were occasionally severe reactions. In one very feeble patient, an alarming shock-like reaction was observed immediately after the injection; but in a few minutes recovery began and was soon complete.

For the trial of charcoal in febrile diseases, only those patients were selected who had been at least 24 hours in hospital, and who were not improving, and whose TPR did not seem likely to settle. Only severe cases were given charcoal. The 123 patients received 269 injections of charcoal—usually 4 to 5 c.cm. of a 2 per cent. suspension. In most cases it was given in addition to ordinary therapy. Injections of gradually increasing doses were given at intervals of a day or longer, for as long as the clinical condition and TPR did not show marked improvement. Charcoal was given in 9 cases of acute bronchitis, 2 cases of broncho-pneumonia in children, 9 cases of lobar pneumonia in children, 36 cases of lobar pneumonia in adults, 5 cases of "malignant" endocarditis, 16 cases of acute rheumatic fever, 7 cases of acute tonsillitis, 4 cases of acute pyelitis, 4 cases of septic abortion, 4 cases of puerperal sepsis, 4 cases of advanced pulmonary tuberculosis, and 23 other miscellaneous medical and surgical cases. The results were compared with those obtained in similar control cases of the same disease who were in the hospital at the same time and whose treatment was the same except that they received no charcoal. No significant difference was found between these results; the death-rates were approximately the same and so was the manner of recovery. Our conclusion was that intravenous charcoal was of no benefit in the acute febrile diseases in which it was tried.

PATHOLOGICAL INVESTIGATIONS

White cell counts.—Conklin stated that intravenous charcoal produced a polymorphonuclear leucocytosis within five minutes of the injection, but according to Reinhardt (1927) it had no effect on the blood count. In the present series of white cell counts at least 800 cells were counted, and differences of less than 10 per cent. were not regarded as significant. All patients were at rest in bed for the day of the count. One series (12 cases) was done in pyrexial disease, and a second series (20 cases) in convalescent patients and afebrile disease. Counts were taken immediately before the charcoal injection, and a second count about five hours later. Counts were also taken in febrile and afebrile patients, immediately before, and five hours after, control intravenous gum-saline injections of the same dosage as the charcoal.

It was found that at the fifth hour half the afebrile cases responded to charcoal with a leucocytosis of 45 per cent., and half the febrile cases with a leucopenia of 20 per cent. The remaining cases showed no change. Gum-saline had no significant effect on the white cells in febrile cases, but was followed by a leucocytosis of 50 per cent. in afebrile cases. The latter finding complicates the interpretation of white cell changes. There was no obvious relationship between the white cell change and the severity of the reaction, or between the white cell change and the alteration in temperature between the times of the counts. Some cases showed a leucopenia in two hours, and a leucocytosis in six hours.

What happens to the charcoal injected?—Suspensions of finely divided carbon (Indian ink) when introduced into the body are stored by the histiocytes (macrophages) of the reticulo-endothelial system (Capell 1929 and 1930). (The amounts of Indian ink injected were relatively much greater than the charcoal doses in man.) Touraine and Ménétrel (1934) and Ménétrel (1935) stated that the charcoal is found in the lung, liver, spleen, marrow, and suprarenal even long after the injection.

To answer this question I performed post-mortems upon several cats injected with charcoal. Naked eye, there was evidence of much charcoal in the lungs, and in one case the liver was very dusky. In autopsies on 8 patients who had been treated with charcoal no abnormality was detectable with the naked eye. Sections of lung, liver, kidney, heart, and spleen were made from the cats and from several human cases, and charcoal particles were found in the lungs, spleen, kidneys, and liver. Large charcoal particles could be seen plugging the small arterioles; smaller ones were observed in polymorphs and reticulo-endothelial cells.

COMMENT

It is of interest to compare the results obtained with charcoal, with those for the injection of colloids and proteins (see Bray 1933, and Steabben 1925 and 1926). Thus Lüdke (1920) believed that an artificial crisis could be induced by intravenous colloidal injections in acute febrile disease. After charcoal, too, an abrupt fall in temperature (but usually temporary) has often followed. When the effects of injections of charcoal are compared with those of colloids and proteins, striking similarities are seen—e.g., pyrexia, chills and rigors, and shock reactions. Protein shock treatment is contra-indicated in states of exhaustion following prolonged illness, and in such cases shock-like reactions followed the use of charcoal. Again, the temperature response to intravenous charcoal is very similar to that following milk injections (Rodin and McBride 1927) and vaccines (Culver 1917, Scully 1917). Further, the white cell changes following injections of protein and vaccines (Rodin and McBride 1927, Hunt, Ervin, and Niles 1935, Harris and Schattenberg 1931) resemble those found for intravenous charcoal on afebrile patients.

SUMMARY

1. Charcoal was given by intravenous injection to 123 patients suffering from acute febrile disease and to an equal number of controls. No benefit from the charcoal was observed.

2. In half of a series of 20 afebrile patients an average leucocyte increase of 45 per cent. was found five hours after charcoal injections, while in half of a series of 12 febrile patients the corresponding finding was a 20 per cent. decrease. (Gum-saline produced a leucocytosis of 50 per cent. at the fifth hour in afebrile cases only.) No relation was found between the white cell changes and the severity of the reactions after charcoal.

3. The response to charcoal injections in several ways resembles the response to injections of protein and colloids.

It is a pleasure to thank Dr. H. Osborne, medical officer of health, and Dr. J. D. Giles, medical superintendent of Hope Hospital, Salford, for allowing me full facilities for this investigation; Dr. W. Mackay, physician to the hospital, for suggestions and help; and Prof. A. D. Macdonald, Prof. S. L. Baker, and Dr. G. J. Langley of Manchester University, and Prof. E. St.-Jacques of Montreal for their interest. I am grateful to Mr. S. E. Melling, F.I.C., for efforts to supply me with improved charcoals, and to Pharmaceutical Specialities (May and Baker) Ltd., and Messrs. Gerrard and Sons, Swinton, for generous supplies of charcoal. Cordial reference must be made to the coöperation of Hope Hospital staff—medical, pathological, and nursing.

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PALPEBRITIS FROM EYELID "SHADING"

By Henry C. Semon, D.M. Oxon., F.R.C.P. Lond.

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ROYAL NORTHERN, HAMPSTEAD, AND KING GEORGE
GENERAL HOSPITALS

Tinting of the eyelids, apart from tinting of the lashes, is now adopted by increasing numbers of women in all ranks of society. It is being fostered by the manufacture of appropriately coloured pigments and dyes of varying composition and cost. There is nothing novel in the practice. Actresses are familiar with the stage effects afforded by judicious application of the right colour in the right place.

So long as it was confined to the "professional" and the demand was relatively small, little or nothing occurred to draw medical attention to the ill effects which might ensue. It is a fact, moreover, that only one or two "shades"—e.g., black, or varying degrees of it, manufactured from various forms of carbon (lamp-black, vegetable and animal charcoal, &c.), incorporated in a suitable base—were procurable. Such preparations, provided the base or vehicle (usually an indifferent oil or ointment) was neither too alkaline from admixture with a soap, nor rancid from decomposition, would be relatively harmless; for carbon is the end of all things and therefore inert, unless its particles are gritty.

The position now is different. The beauty specialist, aided and stimulated by new methods in the production of fine chemicals, vies with the Parisian dressmaker in issuing his fashion edicts, and, as all smart women know, you can match your eyelids not only to your complexion (itself a changing factor), but to suit the varying demands of light and shade, boudoir and ballroom, day and night!

Is it surprising then that there is a whole series of colours, and varying shades of the same colour, available for that one purpose alone? And this is where mischief is born, for without the coal-tar derivatives, as in all the other dyeing industries, the technique of the chemist is cramped. He can provide us with only a limited range of colour from quite innocuous substances. There are calamine, carmine, ultramarine, umber, and indigo, and many salts of less innocuous elements such as lead, arsenic, sulphur, and antimony. Quite apart from the question of their toxicity they cannot vie in convenience or effect with the cheaper and more easily standardised derivatives of the aniline group which are beginning to occupy the same relative position as para-phenylinediamine in the dyeing of human hair and animal furs.

Just as with them, the efforts of the chemist are directed to diminishing or eliminating their latent toxicity, which as we now know is bound up with the variable susceptibilty, acquired or inherited, of the individual concerned. In Case 4 here recorded the patient had been applying two "shading" preparations, consistently purchased from the same firm, for a period of four years, and must presumably have acquired her sensitivity. It was her case that led to an interview with the chief chemist of the firm concerned, and I am beholden to him for his courtesy in affording the following information.

The manufacture of the "shades" follows the same principles as are employed in dyeing furs. The dye is "bound" or fixed so that it becomes chemically inert, to another substance—in this case aluminium oxide or barium sulphate—before it is mixed in the correct percentage with its vehicle or base. In such a fixed condition there should emerge no trace of colour in certain chosen solvents, such as saline solutions of the isotonic strength of tears, or fatty substances corresponding in composition to the sebaceous secretions of the eyelids. The possibility of a rancid or super-alkaline vehicle is eliminated (in his laboratory) by using only mineral substances such as petrolatum, of varying melting points, according to the consistency required. It was stated that in the cheaper samples, soaps were sometimes used as ingredients in the vehicle, and to counteract their alkalinity, superfatting agents such as lanoline (which might go rancid) added to the mixture. The combination of dye with alumina or barium sulphate is termed a "lake," and it was emphasised that lakes only were employed by his firm, and that lakes could not possibly give rise to dermatitis *if they were free from impurities*—i.e., from unfixed traces of the particular dye employed. The contingency should, he thought, be minimised by using only neutral substances such as petrolatum for the vehicle in which the lake was applied. Physically speaking, every particle of the lake was thereby surrounded by a thin film of mineral oil which should prevent them from coming into actual contact with the skin itself.

A study of his argument might incline the reader to conviction were it not for the facts now to be recorded.

CASE RECORDS

CASE 1.—Mrs. H, aged 39, consulted me on July 17th, 1936, for severe irritation all over the face, but concentrated chiefly on the eyelids and the skin below the orbits, symmetrically. There was no lacrymation or conjunctivitis, but there was marked *palpebral œdema*, and an eczematous erythemato-vesicular eruption of the skin over the maxillary and suborbital regions. She had had a similar attack in the previous December. The condition suggested a reaction to some external irritant, and on questioning she admitted applying blue "eye-shade" by a well-known maker of cosmetic preparations for about two months before the first attack, and for about a week before the second. In the interval, when her evening engagements had been few, she did not recollect applying it, and she had been entirely free from all irritation. A patch test on the thigh resulted in a pruritic papular rash after 18 hours. Sedative treatment relieved the symptoms promptly, and there has been no relapse to date.

CASE 2.—Mrs. G, aged 35, who had previously consulted me for sensitivity to the sun, first apparent in Vienna, in June, 1935, came again towards the end of July, 1936, with a somewhat similar eruption on the face and *pronounced œdema of the eyelids.* She admitted applying a green and blue pigment stick (some trace of the latter colour was apparent on the right upper lid), and refuted the possibility of trouble from that source as she had been using it for over two years! A patch test on the forearm was negative to the dye but there has been no recurrence since she gave up the habit. Looking back on this case I am inclined to think that the first diagnosis of solar dermatitis in 1935 was probably erroneous.

CASE 3 was referred for diagnosis and treatment by an ophthalmologist. The patient, a woman of 21, had been using both an eye-shading preparation and a brown eyelash pigment on and off for about a month, and the patch test applied on July 27th, 1936, was strongly positive for the latter. There was acute œdema of both lids, and lacrymation—a symptom not observed in the other cases. There was no conjunctivitis or photophobia. Examination with a lens revealed traces of the pigment on both upper and lower lid margins. Chemical analysis of the preparation established the presence of Bismarck brown, which has been scheduled as a skin irritant,[1] and is derived from meta-phenylene-diamine, which with para-phenylene-diamine has become notorious in fur-dye dermatitis. The eye-shade pigment contained only ultramarine, which was stated to be harmless in itself, but the slight excess of alkali present was undesirable, and might cause dermatitis. The analyst drew attention to a paper[2] in which much of the trouble ensuing from toilet preparations of this kind is ascribed to the perfumes and essential oils incorporated.

CASE 4.—Mrs. T, aged 52, had been using a green shade at night and a blue by day for four years. It had been obtained from the same firm consistently, and without ill effect apparently, until Oct. 22nd, 1936, when severe irritation developed on both sides, more so on the left lower lid. On examination there was some œdema of the lower lids of both eyes, and on the left lower additionally a small ill-defined brownish patch of infiltration, adjoining the punctum lacrymale, and just palpable to the finger. She had been trying to relieve the itching with golden ointment. With frequent applications of boric lotion in the form of compresses, and a cold cream, the symptoms of itching subsided in four days, and when she was again examined on Nov. 12th all trace of the patch of induration had vanished. The patch test to the blue colour was negative.

COMMENT

I think the evidence here recorded will be sufficient to convince all but the most sceptical of the possibility of inflammatory response to the more commonly used eyelid pigments, and nothing that the chemist can adduce will entirely obviate the risk if aniline dyes—no matter how treated or mordanted—continue to be employed in their manufacture.

The test as regards solubility in saline, or fats, is not reliable, for it overlooks the possible effects of changes in the pH values of perspiration, or of other and less ascertainable alterations in the composition of sebum. The effects, physical and chemical, of direct sunlight, changes of temperature, and the presence, especially in towns, of sulphur dioxide, are ignored in such tests. From the dermatological point of view it will be safe to add that there is scarcely a more delicate epidermal covering than that of the eyelids in the whole integument, and that this fact may account for the occasional failure to bring off a patch test in other areas more toughly designed, such as the forearm or back.

In any case it would be very unwise to exclude the possibility of a dermatitis on the eyelids being due to an eyelid pigment because the patch test failed to provide the proof. If however legal action were being contemplated such evidence would of course be of great importance. The epidemic of dermatitis from dyed fur, reported on by A. C. Roxburgh,[3] among others, demonstrates the varied response of individuals to the same dye, the preliminary incubation period in most of the cases, and the apparent shortening of the incubation-time in regular wearers. It is to be expected that the same factors will apply in the case of eye-shading pigments if aniline dyes are utilised.

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[2] Baer, H. L.: Arch. Derm. and Syph., 1935, xxxii., 726.

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AMAUROSIS IN PERNICIOUS ANÆMIA

BY CHARLES R. BOX, M.D., F.R.C.P. Lond., F.R.C.S. Eng.

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Prof. Henry Cohen's communication on optic atrophy as the presenting sign in pernicious anæmia, published in THE LANCET on Nov. 21st, prompts me to send the following notes.

A doctor, aged 67, was admitted to the Royal Masonic Hospital on June 21st this year on account of an unexplained failure of vision. The history was as follows. He had when a young man suffered in the East from malaria and dysentery. With this exception his health had been good as also that of his wife and son. No special diseases could be traced in his family or relatives. The patient was a light smoker and abstemious. Two months before admission to hospital he began to notice tingling in his hands and feet with stiffness of the knees. Also a rather severe attack of diarrhœa ensued which lasted for a fortnight and caused much loss of weight. Soon after the onset of these symptoms all his teeth (15) were removed at two sittings under gas, with one day's interval. Four days later he collapsed and his vision suddenly failed. He was seen by two eye specialists who finding very little are said to have attributed his loss of vision to "opacities in the vitreous."

On admission to hospital the following were outstanding features of the case. With the right eye the patient could only count fingers, and the left vision was only 6/60 improved to 6/12 by plus glasses. Retinal arteries were small. Fine vitreous opacities were present in both eyes, in the right there was in addition a small macular hæmorrhage. The left field was full. Mr. J. M. Cardell who made the examination wrote: "I suggest a Wassermann test. I am not satisfied that the loss of vision left eye is due to intraocular causes. The left fundus looks unhealthy." Examination of the cardiovascular and respiratory systems had negative results, but the knee- and ankle-jerks were only obtained with the greatest difficulty, and one ankle-jerk was thought to be absent. There was no cutaneous anæsthesia or analgesia, but the vibration sense over both legs and up to the costal margin was absent. The cerebro-spinal fluid proved perfectly normal with a negative Wassermann reaction. The W.R. was also negative in the blood. Although the patient was not markedly pallid the nervous symptoms prompted a blood count with this result:—

Red cells ..	.. 2,700,000	Polymorphs ..	.. 68%
White cells	.. 6000	Lymphocytes	.. 23%
Hæmoglobin	.. 54%	Eosinophils ..	.. 3%
Colour-index	.. 1·0	Hyalines ..	.. 5%
		Basophils ..	.. 0
		Myelocytes ..	.. 1%

The red cells showed anisocytosis and punctate basophilia. Later measurements of their diameters gave results 7·6, 7·5, and 7·3 μ. This blood count was followed by a fractional test-meal which showed complete absence of free HCl.

It is not necessary to recount the weekly blood examinations. These showed a steady improvement. On Sept. 18th, three days before discharge, the count was: red cells, 5,000,000; white cells, 8400; Hb., 92 per cent.; C.I., 0·92. Treatment consisted of 2 c.cm. Anahæmin injected weekly for six weeks, followed by liver extract and iron by mouth in full doses. At the end of his stay the patient was able to read his newspaper, which he was quite unable to do on admission. The deep reflexes in the legs were more easily obtained but vibration sense was still absent.

The lessons of this case are so obvious that no comment is needed. I am indebted to Dr. Stephen Falla, our senior resident medical officer, for the careful notes on which the account is based.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF OBSTETRICS AND GYNÆCOLOGY

AT a meeting of this section on Nov. 20th, with Mr. CLIFFORD WHITE, the president, in the chair, a discussion was held on the present position of

Hormones in Obstetrics and Gynæcology

Prof. E. C. DODDS explained that the control of the ovary and testis, and of ovarian periodicity, was vested in the anterior lobe of the pituitary gland. The gonadotropic hormones produced by this lobe stimulated the production of the two ovarian hormones œstrin and progestin—or more accurately œstradiol and progesterone—the latter being formed in the corpus luteum. These two in turn acted on the uterus to bring about the cyclical changes known as menstruation. The gonadotropic hormone also stimulated the pre-puberal testis to produce testosterone, which induced the secondary sexual characteristics of the male and rendered the male capable of reproduction. The thyrotropic hormone of the anterior lobe was also responsible for the continuous stimulation of the thyroid. Hence removal of this lobe was followed not only by atrophy of the genital organs but by atrophy of the thyroid and diminution in the secretion of thyroxine; strangely enough, myxœdema did not result. The injection of a suitable amount of anterior lobe extract caused increased secretion of thyroxine and a rise in the metabolic rate. The suprarenals bore a similar relation to the anterior lobe of the pituitary, while other tropic hormones from the same lobe influenced growth, lactation, the pancreas, and the parathyroids. The posterior lobe of the pituitary produced two substances, oxytocin and vasopressin, one causing contraction of the uterus, the other a rise in blood pressure.

Hormones in clinical use had to be on the market in stable and accurately standardised forms. This consideration limited the discussion to œstradiol, progesterone, gonadotropic hormone, thyroxine, adrenaline, oxytocin, vasopressin, insulin, and parathormone. Prof. Dodds wished to draw attention to the possibility of myxœdema occurring in association with gynæcological conditions such as amenorrhœa, since often the failure of œstradiol or progesterone therapy was attributable to a degree of myxœdema. He had seen many cases where the administration of thyroid extract or thyroxine had increased the patient's sensitivity to those two hormones.

The international unit of œstrin had been fixed at the amount sufficing to bring a mouse into œstrus. The astronomical figures, running into hundreds of thousands, used for proportionate doses in humans alarmed some workers. In reality the quantity referred to as 500,000 units was very small, and it was to be hoped that soon the substances would be described in milligrammes; there was no reason why this should not be so, for they were of crystalline structure and known constitution. The chemical structure of these hormones resembled that of the carcinogenic hydrocarbons and the possibility of dangerous effects from these so-called enormous doses had been pointed out. Conclusions on this point should be drawn from evidence; it could be definitely stated that œstrone and its derivatives had absolutely no carcinogenic activity when tested in the same way as the carcinogenic hydrocarbons; structurally œstrone and its derivatives were less saturated and resembled testosterone much more closely. On the other hand, Lacassagne had shown that if mice were injected continuously from birth to maturity with large quantities of œstrone, the incidence of carcinoma mammæ increased, though only in susceptible animals. Similarly the production of sarcomata by subcutaneous injection of œstrone had been described. These experiments bore no relation to the physiological use of the hormones and it seemed unjust to limit it on this account; the excellent results from the treatment of kraurosis vulvæ, a precancerous condition, was one of the most potent arguments in favour of hormone therapy. Some had advocated estimation of hormone excretion in the urine before starting treatment, but as there were no standard methods for determining the excretion of these hormones nor for interpreting abnormalities the speaker said that no help could be gained at present from such analyses for non-pregnant patients.

Dr. H. **Gardiner-Hill** said that in contrast to the achievements of the scientists the results of hormone therapy were generally regarded as disappointing. Perhaps this was because clinicians expected too much: endocrine therapy was essentially substitution therapy, for hormones did not stimulate the glands that secreted them. Considering the results of hormone therapy in various clinical conditions, he said that when delay of puberty was hereditary or due to cachectic diseases it did not call for hormone therapy; but some of the cases in which there was endocrine imbalance responded well to it, more especially those with thyroid deficiency. The anterior pituitary deficiencies were not so gratifying, for they were often due to a serious lesion which itself would be unaffected by substitution therapy. Moreover, the pituitary growth and gonadotropic hormones were not available; the gonadotropic hormone obtained from pregnancy urine was not identical with the latter and was unlikely to help these cases. Œstrin and corpus luteum hormone led to development of the breasts and menstruation only so long as treatment continued. Though these two hormones in association could also reproduce the normal uterine changes in nearly every case of secondary amenorrhœa, the cycle would not continue spontaneously. Oddly enough he had had better results several years ago; using only small doses then, 60 per cent. of the patients treated had continued to menstruate. The results had been attributed to a trigger effect but the underlying reason for the success was not known. It might have been psychological. Selected cases of menorrhagia and metrorrhagia in his experience responded well to corpus luteum hormone. He believed they would also respond to gonadotropic hormone but of that he had had no experience. Thyroid extract was very valuable in thyroid metrorrhagia. The results of treatment of dysmenorrhœa were always difficult to assess because of the psychological factor. Theoretically œstrin should help those cases associated with undevelopment of the uterus and corpus luteum hormone those due to excessive contractility and irritability. Good results had been reported in both types and further trial was worth while.

Some case of diminished fertility could be very satisfactorily treated with thyroid. Anterior pituitary deficiency probably accounted for the majority of the other endocrine cases of sterility, there being either amenorrhœa or anovular menstruation. Failure of ovulation was the commonest trouble, and in his experience pregnancy urine hormone had done no good for it. Some cases of repeated miscarriages were of thyrogenic origin; they too responded well to thyroid therapy. Others were thought to be due to deficiency of corpus luteum hormone and some good results had been reported with pregnancy urine hormone. In his experience œstrin relieved the vasomotor symptoms of the menopause, it cured kraurosis and pruritus vulvæ, and could improve some allergic conditions such as migraine occurring at the menopause. The difficulty was that in full doses it produced menstruation even in one patient of 65. In conclusion Dr. Gardiner-Hill said that the clinical results were not so disappointing if the limitations of endocrine therapy were borne in mind. Anterior pituitary gonadotropic hormone promised well when it should become available, but even then that would only make further substitution therapy possible.

Dr. P. M. F. **Bishop** (London) drew attention to two guiding principles of hormone therapy: (1) endocrine deficiency might be due either to deficient secretion or to defective utilisation; (2) local and systemic treatment should be considered apart in evaluating its results. He had been using the vaginal-smear method of Papanicolaou in estimating response to œstrin therapy and had found that small doses (1000 to 5000 units daily by mouth) would for instance induce a typical œstrous smear in a menopausal woman whereas five injections of 50,000 units might fail in a long-standing case of amenorrhœa. He had seen cases of amenorrhœa with an excess of œstrin in the blood and urine yet with a distinctly hypoplastic uterus and undeveloped endometrium: the variations in response impaired the value of hormone estimations. In amenorrhœa "local" treatment in the form of œstrin administration could induce the hypoplastic uterus to grow to adult size, but only in a few cases would it continue to respond to the natural secretions. It was possible that if we had satisfactory therapeutic extracts of the follicle-stimulating and luteinising pituitary hormones, and if we knew the correct timing and dosage, we might be able to restore ovarian function. At present we had only the luteinising factor and probably used too small doses. In metropathia hæmorrhagica a bout of flooding could usually be checked in three or four days by the daily injection of progestin or luteinising extract. This treatment was more effective than ergot, and less discomforting and more logical than curettage; it seemed definitely to contra-indicate hysterectomy in a comparatively young woman. This being a form of local treatment was temporary in effect; attempts at systemic treatment by administering a gonadotropic principle were far less successful. Quite small quantities of œstrin were usually enough to control the hot flushes, headaches, and dizziness at the menopause, and rather larger doses had a miraculous effect on such sequelæ as pruritus vulvæ, atrophic senile vaginitis, vaginal ulceration, and kraurosis.

Mr. T. N. A. **Jeffcoate** (Liverpool) said that the theoretical knowledge of endocrinology had increased so rapidly that the clinician could hardly keep up.

The practical application was limited. Progress demanded recognition of failures and he deplored any tendency to gloss them over. The treatment of functional uterine hæmorrhage with gonadotropic and corpus luteum hormones was commonly regarded as one of the few triumphs in organotherapy, but investigation of published cases showed that while it was sometimes helpful it was often useless. Progestin gave almost identical results. Of 79 Liverpool cases of functional hæmorrhage only two-thirds were adequately controlled and a third of these had a recurrence comparatively soon. The treatment, among these cases, had been useful for puberty hæmorrhage (80 per cent. success) and least effective over the age of 40; indeed organotherapy had little place in the treatment of menopausal hæmorrhage. Metropathia hæmorrhagica showed the best results.

Pregnancy in its early stages could not be terminated with œstrin, even in massive doses, but if a dead fœtus was retained in utero its spontaneous expulsion could be brought about by sensitising the uterus with œstrin. Dr. Bishop's present technique was to give 40,000 international units of œstradiol benzoate intramuscularly every eight hours. On the fifth day, if evacuation had not occurred, quinine-and-pituitrin induction was tried. Failing that, the œstrin injections were continued and the same method of induction tried on the eighth or ninth day. The treatment had been successful in 7 out of 12 cases before the twenty-eighth week of pregnancy, taking on an average 2,000,000 units and 140 hours, and in all of 15 cases after twenty-eight weeks, the average dose being slightly less and the average time 97 hours. Speaking of the use of œstrin for uterine inertia, he said he had obtained definite clinical improvement in a fair proportion of uncomplicated cases of primary and secondary inertia; but the results were poorer where there were complications.

Mr. T. N. **MacGregor** (Edinburgh) explained how he differentiated between three types of metrorrhagia requiring different hormone therapy. Some cases were due to early failure of the follicle-ripening hormone as a result of anterior pituitary hypofunction; this was diagnosed by finding resting endometrium on curettage and should be treated by anterior pituitary therapy. Other cases were due to under-development of the uterus and responded to œstrin. Thirdly, in metropathia hæmorrhagica, corpus luteum probably gave the best results. Amenorrhœa also required careful investigation. After excluding systemic disturbances and gross pathological lesions he had found hyperfunction of the anterior pituitary in a few cases and hypofunction in the majority. As the ovarian conditions merely reflected the anterior pituitary function he considered œstrogenic hormones merely subsidiary in treatment. In such cases he gave 5 mg. of œstradiol benzoate twice weekly for five injections and repeated the course after ten days; then after the commencement of bleeding the treatment was continued in the first half of each month for three months. Œstrin was given to patients with uterine hypoplasia until the uterus was normal in size and was then followed by anterior pituitary preparations. The treatment of conditions associated with anterior pituitary hypofunction had become more hopeful since an anterior pituitary substance had been prepared from serum of pregnancy. He had used it for six months with encouraging results, giving 200 mouse units of it together with 200 rat units of urinary gonadotropic hormone.

Dr. **Malcolm Donaldson** suggested that there should be some centre set up in London for the study of these cases.—Mr. **Eardley Holland** urged the keeping of careful records and showed charts which he had been using for the purpose.—Mr. J. W. A. **Hunter** (Manchester) had found that the treatment of 52 carefully selected cases had cost £800. He had had good results in a fair proportion of cases of secondary amenorrhœa, pruritus and adolescent menorrhagia, but poorer results in scanty menstruation and no benefit in dysmenorrhœa and sterility.—Prof. **James Young** ventured to suggest that the great expense of treatment in Manchester was attributable to their not supporting British goods. He sounded a note of warning about the use of hormones for the treatment of habitual abortion. One of his patients had started treatment early in pregnancy and the doctor through a misunderstanding had continued the injections until four weeks after term; the woman had a 13½ lb. baby which she lost, and she very nearly lost her life. He endorsed the good results claimed for sensitisation of the uterus in cases of missed abortion and for menopausal conditions; but he had had two menopausal patients who complained of pain in the breasts after treatment.

Dr. **Chassar Moir** thought that in assessing treatment consideration should be given to the previous duration of the condition; there should be some measure of likelihood of cure without treatment. He considered that no hormone treatment should be given until the patient had been under observation for six months, and that the results should not be considered successful unless response was obtained quickly and to a few doses.

SECTION OF PHYSICAL MEDICINE

At a meeting of this section held on Nov. 20th, the chair was taken by Dr. C. W. **Buckley**, the president, and a discussion on

Short-Wave Therapy

was opened by Dr. E. P. **Cumberbatch**. This therapy, he said, was a first cousin to diathermy, but the frequency of oscillation was much higher: ten to fifty or even a hundred billions a second. The heat generated appeared to play a secondary part, and might not cause rise of temperature or be felt at all. It had been thought that the biological changes were not due to heat, but possibly ordinary thermometric instruments could not measure heat restricted to minute points in a conductor. If the heat could be produced in the depths of the trunk, as was theoretically possible, a great advance had been made, but there was some doubt. Experiments with thermocouples in œsophagus and ureter had shown a rise of one or two degrees, but had not been confirmed as yet. *The therapeutic field of short-wave* treatment was approximately the same as that of diathermotherapy. Dr. Cumberbatch compared certain diseases treated by short-wave and by diathermy methods. The short-wave method had the advantage that the electrodes need not exert pressure or even be in direct contact with the tissue; heat could therefore be used for boils in the external auditory meatus and irregular surfaces like sinuses. It was insufficient to treat by short waves and nothing else. Spectacular results were obtained, but they did not prove everything. The results from short waves and diathermy were indistinguishable in 62 cases of carbuncle, in furuncle, adenitis, and paronychia. For varicose ulcer both methods were equally disappointing. Septic diseases of bone had yielded well to short waves according to Schliephake, but Dr. Cumberbatch had failed to confirm this claim. Relief of pain was certainly obtained and healing began, but he had failed to eradicate infection with either method. Schliephake claimed success in intrathoracic sepsis; in one case in his experience Dr. Cumberbatch had found neither treatment successful; both had given some relief in asthma. Chronic infections of nasal sinuses had remitted in a very few cases, but in the majority there had been no response. In angina of effort short waves had been found more effective than diathermy in a number of patients. Primary glaucoma responded admirably to either diathermy or short-wave therapy.

Mr. H. J. Taylor, Ph.D., explained the physical differences between diathermy and ultra-short-wave therapy, and their methods of generating heat. Diathermy developed the greatest heat in tissues of high resistance near the surface. Ultra-short waves offered entirely different problems. As the frequency increased, the displacement current increased, and this current produced heat. The least conductive tissue was not necessarily the one most heated. A di-electric constant came in to determine the heating of any tissue which corresponded with the formula $\rho = \frac{K}{f.e.}$. For any specific resistance there would be increased heating at increased frequency, without any maximum. Specific resistance changed with frequency, and deductions could not therefore be drawn from existing calculations. In inductothermy the most conductive tissue (vascular tissue) had most heat developed in it. A number of specific effects of ultra-short waves had been claimed—e.g., that at 3·4 m. tumours would be destroyed. No one had ever explained the meaning of the term "specific effect." There was in fact no evidence of any such effect on tumours; any action was due to heat alone. Another false claim made was that there were "surface tension effects." A third so-called effect which had got into the literature was a destructive influence on bacteria; the claim was not new, and had been equally made for the relatively long waves of d'Arsonval. A number of workers had failed to produce it. There was no change in di-electric constant at 3·4 m. On the whole, it must be said that specific effect had not been proven.

Dr. C. B. Heald welcomed a truly critical spirit brought to new work, and quoted two cases of sinusitis treated by short waves with success at first but ultimately continuing until the original source was traced and removed. In a third case associated with cholecystitis the symptoms had remained after cholecystectomy, but had been entirely relieved by short-wave therapy. The problem was not one of short waves but of fundamental diagnosis. There were clinical experiences not provable in any laboratory; the laboratory must be the clinician's aid and not his master.

Sir Leonard Hill demonstrated on the excised frog heart the effects of applying an inductotherm coil to the neighbourhood of a long loop of wire encircling the heart. The heat generated caused acceleration of the heart-beat, and the fact that the effect was due to heat was shown by irrigating with cold Ringer solution. Finally, the heart went into heat rigor. Another experiment, with a nerve-muscle preparation, the nerve on the electrodes, showed increased contraction and tetanus under ultra-wave influences, also stopped by cooling. He described other experiments which went to prove that the ultra-short-wave field produced a purely heat effect on normal tissues. The human mouth could be warmed to 102° or 103° F. by ultra-short waves, as by no other means.

Dr. Justina Wilson thought Dr. Cumberbatch had damned short-wave therapy with faint praise. She herself had found it equal in every respect to diathermy, and in some cases to act where diathermy wholly failed. These were in gynæcological work, non-inflammatory surgical conditions, and some chronic diseases. Dosage must be very mild and gradual, and adequate depth effect must be obtained. Daily treatments of six or seven minutes should begin the treatment, working up to 20 or 30 minutes in a fortnight. The depth effect was the crux of the whole thing, and depended on spacing and dispersion of the lines of force. Because of the higher frequency, adequate air-spacing could be introduced. Glass and air alone should be used as di-electrics, and very large electrodes were essential. Mercury and spirit thermometers were useless in the electric field, but a thermometer of quartz and pure benzol had been produced, and showed a rise of one and a half or nearly two degrees in the vagina. Even if there were no temperature reaction there might be a defensive reaction. Even the small Siemens machines gave infinitely better results than diathermy in inflammatory conditions of the adnexa, but the large apparatus was better still. High energy was necessary where vascularity was so poor. The hyperæmia of diathermy was limited by the fact that it was a conduction current, but ultra-high-frequency current could adjust itself and get through fat and bone much more easily. One encouraging feature was the immense improvement in general health. She was convinced that it was not heat alone that caused the improvement in pelvic conditions. Few people realised what a help ultra-short-wave therapy was in injuries of soft parts such as ligaments, whether recent or of longer history, especially if there were circulatory complications. Diathermy was inferior to short-wave therapy in osteoarthritis of the wrist, acute sciatica, and spondylitis deformans.

Dr. A. Eidinow thought that some short-wave workers tried to make a new physiology and a new pathology, and challenged them to show the effects they claimed. Heat was undoubtedly the cause of the reactions and was a most valuable therapeutic agent. The heat put in should show itself on ordinary thermometers. There was a danger of excessive heating, especially when electrodes were put into the abdomen. He had seen two cases of severe internal hæmorrhage, one of them fatal and the other nearly so. This bleeding of the bowel might be the direct effect of application of electrodes, or might result from toxæmia due to excessive heating. The larger the electrodes, the greater the general pyrexia.

Dr. P. Bauwens spoke of doses producing just a sensation of warmth; he had found them useful in sinus conditions. Defensive processes were extremely difficult to detect, and short waves in small doses, he thought, initiated or encouraged these processes. The waves could be used in two ways: as a substitute for diathermy or to initiate defensive processes.

Dr. W. K. Russell reported results in disseminated sclerosis, general paralysis, tabes, and rheumatoid arthritis. The results had varied. Chorea did very well, as did gonococcal infections, with electropyrexia. He had had good results with varicose ulcer, and sometimes with osteomyelitis and sinusitis.

Dr. George Graham said that at St. Bartholomew's Hospital five cases of general paralysis of the insane had done very well indeed, both clinically and serologically. Results had also been striking in gonococcal arthritis; subacute infective arthritis had shown only a little improvement, and the patients proved much more difficult to treat.

ROYAL ACADEMY OF MEDICINE IN IRELAND

A MEETING of the section of obstetrics was held in Dublin on Oct. 16th with Dr. J. F. CUNNINGHAM, the président, in the chair, when a discussion on

Puerperal Sepsis

was opened by Prof. A. H. DAVIDSON. He gave an account of an outbreak of hæmolytic streptococcal puerperal infection, fourteen cases with four deaths, which occurred at the Rotunda hospital in the spring of 1936. It was coincident with a severe epidemic of streptococcal throats in the hospital and in the city, and also with a number of structural building changes taking place in the hospital. Swabs were positive for streptococcal infection in all cases and blood cultures were taken in eight patients and found to be positive in two—both of whom died. Throat swabs were positive for hæmolytic streptococcal infection in seven cases. Ten cases had spontaneous births and in seven cases there was no vaginal interference of any kind. Eight of the patients were in direct contact with droplet infection from a positive streptococcal throat of a doctor or nurse. Three patients developed peritonitis, two of whom died and one recovered. The abdomen was opened and drainage-tubes inserted in each of these three patients. None of them had a positive blood culture. Three patients developed insanity. The treatment consisted in polyvalent antistreptococcal serum, antiscarlatinal serum, and intra-uterine glycerin where the lochia were purulent or fœtid. Prontosil was used in the last case only, with satisfactory results; it was not available in the earlier cases. The cases were isolated in a large ward with separate staff, crockery, and dressings. All the nurses, students, and staff of the hospital had their throats swabbed and any with positive streptococcal infection were sent home or off duty. Vaginal examinations were completely stopped and all operative intervention was cut down to a minimum. Masks were worn in the labour ward and puerperal wards. The importance of spray and droplet infection was, he said, well borne out in this epidemic, showing the necessity of early recognition and segregation of those with infected air-passages.

Dr. R. M. CORBET reported an outbreak of six cases of puerperal infection occurring in the Coombe hospital at the beginning of June, 1936. In one case streptococci were grown from the blood, in two from the uterine swabs. In the four others, although streptococci were seen in the smears from the uterine cavity, no organisms could be grown aerobically. These four patients formed large quantities of pus in the uterine cavity, yet no growth could be obtained. Treatment was with prontosil by intramuscular injection and by mouth, and by intra-uterine douching where any quantity of pus was found in the uterine cavity. All the patients survived. No conclusion was reached as to the origin of the outbreak; at the time of the outbreak there was one patient with an acute streptococcal throat, three nurses off duty with sore-throats and one with scarlet fever, and a swab of the staff showed hæmolytic streptococci in the throats of one assistant and 14 nurses. The patients who were infected had all been in contact with at least three nurses carrying hæmolytic streptococci. The usual precautions of isolation and the elimination of active streptococcal carriers were taken.

DISCUSSION

Dr. G. C. DOCKERAY said that during the epidemic at the Rotunda the rule had been introduced of taking a swab from anyone in the hospital who had the least sign of a cold in the head or a sore-throat, and this would be continued in the future. It was important that no nurse should be allowed back on duty until a release swab had been taken. Dr. Colebrook had recently stated that in his experience about 50 per cent. of puerperal deaths were due to streptococcal septicæmia, and in many of these the infection was contracted from sore-throats. He was of opinion that in the next edition of the rules of the Central Midwives Board sore-throat should be mentioned.

Dr. C. J. MCSWEENEY said that at Cork-street fever hospital since September, 1934, he had treated 52 cases of puerperal sepsis. Twenty were cases of pure septicæmia; of these eight died. In all the fatal cases a pure culture of hæmolytic streptococcus was obtained from the blood. There were two cases of pyæmia, both of which recovered. Of the thirty cases of various types that remained, none died. Out of the fifty-two cases eight died. The place of surgery in the treatment of puerperal sepsis was, he thought, very limited. There was really no treatment of puerperal sepsis because it was not a clinical entity; every case had to be treated on its own merits. Conservative treatment was best. The only serum of value in treatment was scarlatinal antitoxin, given in big doses repeatedly. Glycerin was useful in local pelvic conditions, and Collosol iodine as an adjuvant to serum. No other drug had been found consistently of service. He thought that some cases were discharged too soon from the maternity hospitals. Puerperal septicæmia was much more the result of endogenous than exogenous infection. He felt that the day of the large ward was gone; small wards and aseptic nursing were necessary in every hospital. No mask was of use except a cellophane one; gauze masks quickly got moist and bacilli gathered in them.

Dr. J. MCGRATH said it should be more widely understood that streptococci were not the only cause of puerperal sepsis; staphylococci and coliform organisms also gave rise to sepsis. A swab should be taken from within the cervix and from within the uterus. He had found hæmolytic streptococci in the cervices of women with whom there was practically nothing wrong. Only some of the hæmolytic streptococci were dangerous, and to find out which required expensive sugar examinations. Damp masks were a source of danger; cellophane masks only diverted the current of air and were not really efficacious.

Dr. BETHEL SOLOMONS said that during his seven years of mastership at the Rotunda, when about thirty thousand cases were delivered, there was no outbreak of sepsis. It had been suggested that building operations predisposed to sepsis; during his mastership a new wing had been built. At the Rotunda lately when masks were not worn such an outbreak had occurred; at the Coombe where masks were worn there had been a similar outbreak. Did masks stop an outbreak? It had been proved that many people carried virulent hæmolytic streptococci in their respiratory passages, and he agreed that the Rotunda could not continue the avoidance of masks. If masks were worn there should be a layer of cellophane between the layers of gauze; this prevented the occurrence of moisture. Nurses and students should be taught not to talk over the genitalia. Small isolation wards were essential. He had always taught that puerperal sepsis consisted of a group of diseases and that it depended on the ability of the accoucheur to find the correct treatment for the individual case. Mild cases would be cured by any drugs; hence the variety of drugs recommended and the cures achieved by different methods. Severe cases required meticulous care in diagnosis. Surgery had a place, but an extremely small one. He was sorry to hear of intra-uterine douches still being given; drainage by tube was safer. He was surprised that quinine had not been mentioned.

Dr. W. P. O'CALLAGHAN said that the absence of fever did not negative the presence of hæmolytic streptococci. In Holles-street hospital the routine swabbing of septic throats had reduced the sepsis rate.

Dr. W. H. ASHMORE said he was convinced that, although endogenous infection might occur, nurses with septic teeth or tonsils were the principal cause of sepsis. Nurses did not realise the danger of carrying on a conversation during parturition. He looked forward to the day when no doctor or midwife would attend labour without wearing a mask.

Dr. ALAN THOMPSON said the most likely route of infection was through the woman's own throat. A probable mode of infection in some cases was an intermittent invasion of bacteria in the blood stream, which infected the uterus and the breasts. He suggested the routine swabbing of women's throats while they were waiting for their confinements.

Dr. T. O. GRAHAM said he did not know how to disinfect an infected throat. If the tonsils were badly infected he enucleated them. By aspiration it was possible to get rid of some of the pus, but the crypts were deep and it was impossible to get all the pus out. He found that 25 per cent. of his patients had hæmolytic streptococci in their throats, and this was, he thought, the proportion in the population as a whole. He painted throats and gave a gargle, but there was nothing else to be done. Antistreptococcal serum was useless; two cases of septicæmia to whom he had given scarlatina antitoxin had recovered. If pus formed in a case of septicæmia, the patient would probably recover; fixation abscess was helpful. He had given up using collosol iodine; prontosil he had found very efficacious.

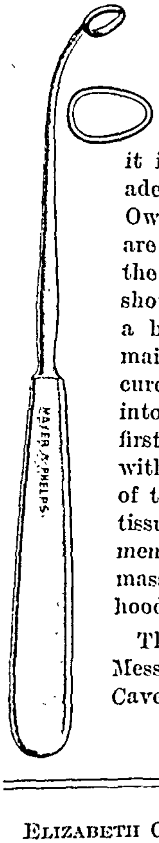
The PRESIDENT thought that masks should not have less than four layers of gauze and should be changed frequently. Nurses should be watched to see that they did not handle the masks once they had been put on. In Holles-street hospital (of which he was master) before a nurse was allowed to go into the labour ward a swab was taken from her throat and if it was found to contain hæmolytic streptococci she was not allowed to go on duty. Every nurse's throat was sprayed every day. Infection through the air sometimes occurred. There should not be such a thing as an isolation ward; infected patients should be in single rooms. The place of surgery was very limited, but in some cases exploration of the uterus was indicated. He did not think serum was any use unless given prophylactically or in the very early stages.

REPLY

Prof. DAVIDSON said that the real thing about masks was that they should be changed frequently. He had operated for years with masks with only a single layer of gauze. Masks should be made simply, changed frequently, and destroyed after use. In most cases he used at least 150 c.cm. of antiscarlatinal serum; antistreptococcal serum was of no use. He had the strongest belief in glycerin; it drained these cases in a better and safer way than anything else. He did not believe in collosol iodine.

Dr. CORBET said that he looked on intra-uterine douching in general as a dangerous weapon, but in some cases it was useful. Eight days was too short a time to keep patients in hospital, but patients were anxious to get home and if kept for eight days instead of nine it was possible to handle one hundred more deliveries in the year. He thought that the good results of prophylactic serum were largely due to the fact that it was given to patients who were not going to get sepsis anyhow.

NEW INVENTIONS



A RING KNIFE FOR ADENOIDECTOMY

WITH a large curette, however thoroughly it is used, it is impossible to remove all adenoid tissue from the nasopharynx. Owing to the depth of the blade remnants are left especially in the region just behind the choanal orifices. The instrument here shown is a specially shaped ring knife on a bent shaft. After the removal of the main mass of adenoids with an ordinary curette this instrument can be introduced into the posterior part of the nasal cavity, first on one side then on the other, and with a few gentle sweeps the last traces of the most anterior portions of lymphoid tissue can be cleared away. The instrument is also very useful in removing adenoid masses situated laterally in the neighbourhood of the Eustachian cushions.

This instrument can be obtained from Messrs. Mayer and Phelps, 59-61, New Cavendish-street, W.1.

NORMAN PATTERSON, F.R.C.S. Eng.

ELIZABETH GARRETT ANDERSON HOSPITAL.—A new nurses' home is much needed at this hospital, for the nursing staff is at present distributed between a hotel, two houses, and the old nurses' home. These quarters cost over a thousand a year to rent. The new home will cost £50,000, of which so far £20,000 has been raised.

MILLER HOSPITAL, GREENWICH.—It is proposed to change the name of this hospital to the Duke of Kent's Hospital for South East London. The hospital was known as the Kent Dispensary and also as the Royal Kent Dispensary before it was renamed in 1908 after Canon Miller. A new out-patients' department is to be erected, and King Edward's Hospital Fund has given £4000, making a total of £10,500 available for the scheme. The maintenance cost of the hospital for the last financial year was £43,591, and the income £49,257.

REVIEWS AND NOTICES OF BOOKS

Syphilis and its Treatment

By WILLIAM A. HINTON, M.D. Boston. London: Henry Kimpton. 1936. Pp. 321. 15*s.*

THE author's wide clinical and laboratory experience in syphilology have given him an exceptional insight into the difficulties and problems of this study. His views reflect the modern spirit of doubt and inquiry, which is a natural reaction from the wave of extreme optimism which followed Ehrlich's discovery of salvarsan nearly 30 years ago. But any temptation to wander in the realms of controversy has been strongly resisted and the necessary facts are set forth in clear and concise style. On debatable matters the author's own opinions are given with firmness and decision and mostly the reasons which have led him to such conclusions are stated.

All will agree with Dr. Hinton on the importance of treating the syphilitic patient and not positive blood tests; but his view that serum reactions are of small value in assessing the response to treatment, and in judging the necessity for further treatment, will not receive such ready acceptance. An example of the practical application of these views may be seen in his method of dealing with the young and symptomless patient without signs of active syphilis in whom the serum reactions are positive. He recommends treatment only if the patient is pregnant or contemplates early marriage, or if there are positive findings in the cerebro-spinal fluid; otherwise he advises close observation for one year with monthly blood tests and two examinations of the spinal fluid, and then yearly examination for 15 to 20 years. Treatment is thus withheld unless signs of syphilis appear. This course of action seems hardly likely to inspire the patient with confidence and might easily induce an intractable type of anxiety neurosis.

Dr. Hinton includes mercury in the treatment recommended at all the stages of syphilis, believing this drug to be unexcelled in preventing the development of new lesions. He deplores the modern tendency to replace it entirely with the bismuth preparations. For the treatment of early syphilis he adopts the alternating continuous method and in every such case maintains treatment for three years unless there is some contra-indication. Mostly this involves more treatment over a longer period than syphilologists in this country consider necessary. Stovarsol, the pentavalent arsenical for oral therapy, is condemned outright, an opinion which many who have used this drug successfully in congenital syphilis will not endorse.

This practical and stimulating manual contains all that practitioners and students need to know of the subject. The absence of illustrations and of detailed directions for the administration of drugs is not to be regretted, for the technique of treatment of syphilis can far better be learned through demonstrations; the expert should not ignore this book as too elementary for he is likely to derive profit as well as interest from its pages.

The Diagnostics of Pain

By TH. B. WERNØE. Copenhagen: Levin and Munksgaard; London: Humphrey Milford, Oxford University Press. 1936. Pp. 116. 7*s.* 6*d.*

SEVEN lectures delivered in 1934 to medical students and physicians in the University of Copenhagen are here translated into English and published in a neat little volume. Pain in general is subdivided into direct pain, felt at the site of the stimulus which produces it; projected pain, felt at the periphery when irritation occurs of some part of the long path from the end-organ to the thalamus and the cortex; referred pain, felt in the periphery at some spot remote from the stimulus; pains arising in muscle, and in the vegetative nervous system; and psychogenic pain. These groups and the mechanisms involved are discussed and exemplified with engaging clearness and simplicity, though not always with entirely convincing arguments. Much of the ground covered is familiar, but the author refers to some observations and theories of his own, especially to his demonstration of areas of cutaneous anæmia coinciding with the areas in which referred pain is felt in visceral lesions; he thinks that nerve impulses from the viscus are reflected to the periphery, where they somehow cause stimulation of the sensory nerve-endings there and so give rise to pain, which can be abolished by local anæsthesia of the area in question. He offers this as a partial, but not as a complete, explanation of the mechanism of visceral referred pain. In places he seems to walk on rather uncertain ground, as where he accepts lesions in sympathetic ganglion cells as the cause of Raynaud's disease. The book is meant to be a general introduction to its subject, and is to be followed at some later date by a larger work on the special diagnostics of all the pains that human flesh is heir to.

Medicine and Mankind

Edited by IAGO GALDSTON, M.D., executive secretary, New York Academy of Medicine. Introduction by EUGENE H. POOL, M.D., President of the Academy. London: D. Appleton-Century Co. Inc. 1936. Pp. 217. 7*s.* 6*d.*

THIS small book consists of eight lectures delivered at the New York Academy of Medicine to lay audiences by outstanding medical men; the object of the lectures, which was "to admit the public behind the scenes and to reveal to them the influences which direct the working of the medical mind," has been remembered in making the collection. The changing relationships between the medical profession and the public, which can be noted in this country in all directions of social affairs, have also manifested themselves in the United States, and nothing could be better for the medical profession than that lay authorities and workers should be able to follow, as they arise, the issues which medicine has to deal with.

The lectures are divided into two groups, four of them being sponsored by the bureau of medical information set up by the Academy under the chairmanship of Dr. J. J. Moorhead, and four of them coming from the Academy's committee on medical education under the chairmanship of Dr. Carl Eggers. Although published with a common object, the chapters have nothing to do with each other. In the first essay, Prof. Benjamin Watson gives a rapid historical sketch of medical history, and in the second chapter another historical contribution from the pen of Dr. Howard Haggard depicts medicine in the days of Louis XIV. He reigned from 1643 to 1715, and it will be seen that under his rule medicine had a unique opportunity of development inasmuch as just before he came to the throne the whole of physiology in relation to medicine had to be transformed by the discovery of the circulation of the blood. An interesting chapter by Dr. Harlow Brooks summarises the contributions of the primitive

American to medicine and gives opportunity for a good story illustrating the influence which suggestive therapeutics was wont to play, and continues to play, among the Indians. An educated and superior "medicine man" brought his wife to a hospital to be operated on for appendicitis which he had diagnosed correctly, saying: "You white men can treat some diseases a great deal better than we can, such things as gall-stones and appendicitis, but I can treat some diseases much better than you can, such diseases as nervousness" (or as he expressed it), "diseases of the spirit. Neither one of us is any good treating pneumonia."

Other chapters, also by men of professorial standing, reveal their import by titles such as "the organic background of mind," and "the common denominator of disease"; and the book closes with a simple exposition of what is meant by vitamins, and a chapter by Prof. Alexis Carrel on "the mystery of death" which closes with the optimistic surmise: "Perhaps, in a very distant future, some genius, greater than Galileo, Newton, or Pasteur, will conquer from life, in the abysses of the body, the mystery of death."

Elementary Physics

For Medical, First Year University Science Students, and General Use in Schools. Fifth edition. By G. Stead, M.A., F.Inst.P., Reader in Physics in the University of London (Guy's Hospital Medical School); University Lecturer in Physics as applied to Medical Radiology, Cambridge. London: J. and A. Churchill Ltd. 1936. Pp. 559. 12*s.* 6*d.*

Mr. Stead's book has already proved its value, especially to medical students, and it is now to embrace a wider circle of readers, for there are nearly 100 pages of fresh material in the present edition, which should meet the needs of those doing physics for the Higher School Certificate. A variation in type allows the differentiation of the more advanced parts of the subject. We have nothing but praise for this book. The writing is lucid, and the material well selected and illustrated by good diagrams. The last 40 pages, dealing with X rays, radio-activity, and atomics generally, succeed in giving the reader an excellent idea of the unique features embodied in their study. The work can be recommended without reservation.

L'année thérapeutique

Médications et procédés nouveaux. By A. Ravina. Paris: Masson et Cie. 1936. Pp. 195. Fr.18.

A book containing some 70 concise articles and notes on recent therapeutics will always be welcomed by practitioners, especially when the measures described are almost without exception simple, practicable, and backed up by encouraging results. The book is divided into three parts. Part I. deals with the treatment of certain diseases and symptoms; of coryza, for example, by infra-red rays, of cirrhosis by onion wine, and of heat-stroke by the ingestion of salt solution. Other notes of interest are one on the treatment of eczema by splenic extract, of enuresis by sex hormones and, most important, of diphtheria carriers by powdered neutral O-oxyquinoleine sulphate. Mention must also be made of a method of treating secondary parotitis by injections of Lugol's solution. A series of ten cases without a death is recorded under this treatment. Part II., methods and techniques, deals inter alia with suboccipital puncture and blood transfusion. Part III. is concerned with recent and particular applications of certain substances; of insulin, for example, in the treatment of uterine hæmorrhage of ovarian origin, and of methylene-blue for the cyanosis and dyspnœa met with in acute pulmonary disease. The practitioner who is therapeutically speaking "up against it" will certainly find in this book something else worth trying, even if he suspects that the rationale of some of the treatments suggested would not bear statistical investigation.

Hospital Accounts and Financial Administration

Second edition. By Captain J. E. Stone, F.S.A.A., F.S.S., F.R.Econ.S., Secretary, Birmingham Hospitals Centre. London: Faber and Faber Ltd. 1936. Pp. 278. 21*s.*

In view of the revolutionary changes which are now taking place in hospital management, governing bodies of hospitals must be glad to avail themselves of every source of authoritative information on the subject. Captain J. E. Stone's book is the result of the patient accumulation of facts, and the expression of these facts in an orderly arrangement provides a reliable picture, administrative, financial, and statistical, of the well-managed hospital. Captain Stone is no amateur. Once chief accountant at St. Thomas's Hospital and now secretary to the Birmingham Hospitals Centre, he has a packed lifetime of experience in this field of social service between those two activities. His gospel is "organisation unit system" of hospital accounts, designed to bring about in the scheme of hospital management economy, efficiency, and a retention of the humanities.

Medical Procedures, Operative and Diagnostic

By Mohamid Ibrahim, M.D., M.R.C.P. Lond., Assistant Physician, Kasr-el-Ainy Hospital; Lecturer in Medicine to the Dental School, Egyptian University; and Paul Ghalioungui, M.D., M.R.C.P. Lond., Medical Tutor to the Faculty of Medicine; formerly Registrar to the Medical Unit, Kasr-el-Ainy Hospital, Egyptian University. Printed by Norry and Sons. Obtainable from H. K. Lewis and Co., Ltd., London. 1936. Pp. 139. 3*s.* 6*d.*

Intended for junior house physicians, presumed to be still ignorant of these procedures, and for general practitioners, presumed to have forgotten them, the authors express the hope that this book will provide in a compact form information which is scattered through many books. The hope is vain, for other and better books on similar lines have already appeared. The technique for applying leeches is described, and also that for introducing Southey's tubes into œdematous legs; both these procedures are surely obsolescent, if not obsolete. Apart from the risk of sepsis, most practitioners would hesitate to use Southey's tubes in these days of mercurial diuretics. Describing the technique of vaccination against small-pox, the authors recommend two or three scarifications an inch apart; it is noteworthy that in this country public vaccinators are now only required to make one. The appendix, tabulating the composition of the blood, cerebrospinal fluid, and pleural effusions would have been more useful had the normal and abnormal cytology of the blood, as well as its biochemistry, been included.

THE LANCET

LONDON: SATURDAY, NOVEMBER 28, 1936

A REGIONAL SCHEME FOR RADIUM TREATMENT

FROM its inception in 1929 the National Radium Commission has adopted as one of its fundamental principles that radium should be loaned to a few hospitals, each of which should form a "centre" serving an area larger than that of its ordinary circle of influence. This was because it was recognised that owing to the scarcity of radium there was not enough for every hospital to have a supply of its own, and that there were not enough skilled workers to serve more than a few centres. Dr. R. **PATERSON** describes [1] the organisation that has been built up by the Manchester Radium Institute to provide an efficient radium service over a large area, and considers how far centralisation is possible. The central unit at the Christie Hospital and Holt Radium Institute, of which he is director, possesses a large quantity of radium, adequate modern X ray therapy plants, a specialist radiotherapeutic staff, a physicist, a well-equipped physical laboratory, consultants in their specialties, and a clerical staff large and skilled enough to do the intricate work that is necessary for the success of an elaborately organised scheme. Agreements have been made between this central unit on the one hand and voluntary hospitals and public health authorities on the other for the treatment of their patients by the staff and radium of the centre, the treatment to be carried out if possible at the centre itself, but if not at their outlying hospitals. The advantage of these agreements is that local interest and enthusiasm is preserved, the patients more readily use the facilities provided in their own localities than those situated at a distance, and the difficulties of bed shortage are greatly eased.

Dr. **PATERSON** thinks that the provision of a radiotherapeutic centre for an area with a population of less than 250,000 would be essentially futile and lead to poor work. "To achieve the full advantages of centralisation with a central unit with two or three medical officers and a physicist," he says, "the unit would have to serve exclusively a population of about 1,500,000 to 2,000,000." A unit of this size has been achieved at Manchester by these agreements made with other bodies, and during 1935 out of 2075 patients 873 were referred from the centre and 768 under the schemes. As the radium service is being used by many hospitals its cost has to be borne in part by each of them, and Dr. **PATERSON** discusses the principles on which such payments should be made. A distinction is drawn between payments by voluntary hospitals —the charge covering only the actual cost of medical services, travelling expenses, and the hire of radium—and payments by public health authorities, who are asked to cover the full value of services given, including maintenance of their patients while in the Institute, and the estimated value of all the services rendered therein. Payment of this kind by health authorities to voluntary institutions, being payments for services received, is not new, but its extension to many parts of the country might help to finance those radium centres which are hampered by the lack of funds. The Radium Commission has acted on the assumption that a centre that cannot keep half a gramme of radium and a whole-time radiotherapist constantly occupied cannot function as an efficient centre, and as time goes on it would appear that these figures are by no means too large. The association therefore of several hospitals to form one unit appears to be inevitable and the organisation of such a centre presents many problems which have to be solved. The Manchester scheme is a bold and ingenious solution of the problem and its full description will be of value to those contemplating similar organisations.

WORK AS A REMEDY

As the function of a hospital is to cure, it seems obvious that its governors should make the fullest use of those forces in the patient that most powerfully assist healing. One of the greatest of these is the creative or constructive function. An idle patient is a miserable one, and a miserable patient is not going to get well as soon as a cheerful one. This simple principle was seldom applied, however, until quite recently when physicians in charge of mental hospitals began to discover that "occupational therapy" made a magical difference in their patients' happiness, docility, and recovery-rate. From another angle the physiotherapists took up the new science of re-educating patients who had suffered injury to limbs and joints, and now it is beneficially invading the hospital.

The name "occupational therapy" is not perhaps a fortunate one, but it is difficult to think of a better. At first, of course, the reformers set out to occupy their patients and keep them busy, but the method has broadened into something much wider, for it is now a whole physical, mental, moral, and perhaps even spiritual system of re-education. Its scope and manifold resources were explained by several speakers at the Public Health Congress last week, notably by Mr. H. F. **SHRIMPTON**, who administers the Children's Hospital, Birmingham, and Dr. **RICHARD EAGER**, a mental hospital superintendent of long experience. Dr. **EAGER**, after a visit to Holland, put what he had learnt to such profit that soon three-quarters of the patients in his hospital were systematically occupied. He found that physical drill and folk-dancing became very popular as well as improving the patients' health, and that organised games and dances, in which patients performed themselves as well as watching members of the staff, made vast difference to the atmosphere of the hospit and introduced a sociable and homely feeling. f his subject was recreations and amusements ig did not deal much with the side of occupat ist therapy which most interested Mr. SHRIMPTON—the constructive side, which trains a man and uses him, and gives him in return for his effort a developed faculty, a usefulness, and often a means of earning his livelihood in spite of his disability. Dr. EAGER finds that to call occupation "work" repels the modern mind, but Mr. SHRIMPTON boldly advocates real work as one of the deepest needs of the hospital patient, and it is now a commonplace experience that the work of the mental hospital's farm, garden, laundry, engine-house, and so on is almost a necessity of life to many patients if they can be given a certain variety in it. HENRY FORD gave his bedridden employees a pile of bolts and nuts to assemble; so far from hating this commonplace work the men begged for it, and became better at it than their healthy mates. To increase the patient's self-confidence, in fact, it is almost essential that the work should be real. This may not apply so much to the mental hospital, but it has been found to apply closely to institutions faced with the problem of fitting blind, crippled, and tuberculous patients to earn their living. At Papworth Hall and in the settlement of the Disabled Sailors' and Soldiers' Mutual Association the patients are taught, not art-and-crafty work, but everyday, sound trades like printing and carpentry, and industries have been built up that will compete in the open market.

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[1] Public Health, November, 1936, p. 41.

Some physicians believe that all illness, and even all injury, is one expression of a psychic problem: nearly all will agree that if the problem is not primary, it is almost always present as a secondary handicap. If, then, the hospital's service is going to be complete each patient should be studied from the beginning with the object of discovering what help can be given him in his re-education for health. If the illness is likely to be a long one he might be started on some form of constructive occupational therapy, suited as closely as possible to his needs, as soon as he is well enough —and that is very early, for even the acutely ill will sometimes benefit from the right kind of occupation. As he gets better, he may perhaps be trained out of his bad mental and physical attitudes and fitted better for living a healthy and useful life so that he will not need to come back. Sometimes, after discharge to a convalescent or continuation hospital, he may need to keep in touch with the out-patient department, where the staff are trained to assist and supervise him in the new activities he has learnt. This is one of the chief functions of the modern hospital as Mr. SHRIMPTON sees it, and one that would make it even more valuable to the community than it is at present. On the other hand, many will feel that the problem of convalescence—the return to life—is one that should properly be tackled by family doctors rather than by institutions. If so (as we have said before[1]) they must be amily doctors with sound facilities behind them. nce again we are back at the conception of mary health centres adequately equipped for ative and preventive medicine.

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[1] The Problem of Convalescence, 1933, i., 145.

BONE TRANSPLANTATION

THE ingenious method devised by Dr. SVANTE ORELL of Stockholm for the study of bone transplants in the human subject has led him to further practical results.[1] We have already seen[2] how Orell has used the defect, left by the excision of a large slice of tibia for an Albee graft, as a convenient bed in which to implant bone. The active regeneration that followed the subperiosteal implantation of bone led him to try the effect of grafting between the periosteum and bone in the intact tibia. By this expedient he provided a local excess of calcium, at the same time raising from the bone surface the tissue that, rightly or wrongly, has been regarded as a membrane limiting bone production. The result is the formation on the surface of the tibia of a mass of soft vascular spongy bone filling the gap between tibia, transplant, and periosteum. This is the substance Orell calls "os novum" which, by regrafting in various situations in the body, he has used so successfully to repair bony defects and to ankylose diseased joints.[3] The os novum is loosely attached to the subperiosteal implant and to the periosteum, but it has to be chipped off the tibia, so firm is its attachment. The obvious conclusion is that it grows from the shaft of the bone and not from the deep surface of the periosteum. The implant that stimulates the growth of os novum may be fresh bone, but it is not essential to implant living cells, for Orell generally uses bone that has been freed of fat, periosteum, marrow, and of the cellular contents of the Haversian canals. By soaking the bone in warm salt solution, albuminous substances are removed and connective tissue elements are dissolved by warm potash. Nothing remains but the bony framework with its calcium content. This "os purum" is left undisturbed under the periosteum for a month or two and then removed with its attached os novum, ready for regrafting as a whole or in smaller pieces where it is needed. Orell usually grafts os purum and os novum together, but for certain purposes, such as promoting regeneration of the lunate bone after necrosis, or aiding ankylosis of one of the smaller joints, os novum may be employed alone. The ease with which the os novum can be shaped to fit its new bed has been found a great advantage. Orell has been particularly pleased with its value in operations for ankylosis of the vertebræ in tubercle of the spine. Where the splinting function of the graft is needed, as for example in reconstruction of a metacarpal bone, os purum is of more value. In arthrodesis of the sacroiliac joints he has used os novum embedded in a groove in the bones directly over the joint, and os purum outside the bone to serve both as an indication on the radiograms and as a source of calcium. The time taken up while the graft of os novum grows on the tibial surface is a disadvantage, but we have Orell's assurance that the patient can be up and about from the second day of the transplantation of the os purum.

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[1] Acta chir. Scand., 1934, lxxiv., suppl. xxxi.

[2] THE LANCET, 1935, i., 158.

[3] Acta soc. med. Suecanae. (Lennander-Vorlesung, gehalten in der Schwed. Ärztegesellsch., April 1936.) Stockholm, 1936.

What is the fate of these grafts when used to promote bony consolidation? Orell is definitely of the opinion that in the case of os purum the whole of the graft is absorbed; it acts essentially as a source of calcium, and its presence is a stimulus to the connective tissue of the graft bed to form bone. He distinguishes between true osseous connective tissue and extraskeletal connective tissue. The former reacts rapidly, evidence of bone formation being evident in two or three weeks, whereas fibrous tissue such as surrounds the ends of a pseudarthrosis takes months to absorb the graft and form bone. Os novum consists of loosely constructed osteoid tissue, with very vascular and richly cellular young connective tissue. Orell believes that the osteoid tissue is all absorbed, but that the connective tissue remains and is the essential part of the graft. In grafts of fresh mature bone the proportion of osteoid tissue and connective tissue is small, and for this reason they are not so suitable for implantation. The vascularity of the bed which receives the graft is important; where the young connective tissue is well nourished growth will be correspondingly more rapid. Orell believes that the growing connective tissue of the graft meets the connective tissue of the bone, which in its turn is stimulated to growth by the presence of the calcium, and that the two become incorporated. Os purum can readily be implanted without periosteal attachment and is just as active in this condition. This would appear to dispose of the theory that the graft owes its osteogenic power to osteoblasts adherent to the deep surface of the periosteum. Orell has found it unnecessary to excise the fibrous tissue from the ends of a pseudarthrosis, but he advises using a large mass of new bone, and making sure that it is in close contact with the healthy shaft well beyond the broken ends.

One of the most interesting operations described by Orell is the resection of diseased bone, followed by its rapid sterilisation and reinsertion into its periosteal bed. This he has done successfully in two cases of chronic suppurative osteomyelitis, with primary healing in one case. In a case of sarcoma of the upper end of the humerus, the greater part of the shaft was resected, the tumour mass scraped away, multiple perforations made in the shaft, and the bone boiled for ten minutes and reinserted with the aid of a bone peg at its lower end. The patient at the end of six months has developed secondary deposits in the lung, but there is no evidence at all of local recurrence. The reimplanted bone is of course absorbed, but its presence during reconstruction of the shaft maintains the length of the bone and prevents the disabling deformity and non-union dreaded after massive resections. It also provides a local supply of calcium for the formation of the involucrum. All Orell's three patients regained strong limbs with good function.

WORKMEN'S COMPENSATION AND THE DOCTOR

THE drastic Workmen's Compensation Bill, which was refused a second reading in the House of Commons a fortnight ago, raised issues which survive its defeat. It is an old complaint that expert witnesses of all kinds are prone to partisanship and over-statement. In introducing the Bill, Mr. MAINWARING, M.P., elaborated this accusation against the medical profession in compensation cases. Medical witnesses, he said in effect, were partisans and advocates; medical referees were part-timers who might be acting for employers one day and sitting in judgment the next. Both employers and workmen—Mr. Mainwaring was careful not to blame one side only—"can get any medical expert to say anything they want in their favour." The Bill proposed to eliminate the medical referee entirely. Mr. Mainwaring, to his regret, found it impossible to get rid of medical witnesses altogether, but he roundly criticised the "prostitution of medical science." Although, as already noted, he did not charge the employers alone with buying tame experts to give evidence; he and other supporters of the Bill left no doubt that their reforming zeal aims at making generous compensation automatic upon injury to the workman; the medical witness, like the medical referee, is somehow an obstacle to this ideal. The workman, if injured, is to be treated as an industrial soldier whose wounds justify payment and pension at the hands of a prosperous community.

The supporters of the Bill voiced the conviction that at present the amount of compensation available is too small and its basis too narrow, that the employers' organisations are too anxious to belittle or deny the workman's claim, the insurance companies too impersonal and inhuman, the judicial arrangements too indirect and formal, the law itself too blindly obsessed with the citation of decided cases and too little inspired by the supposed intentions of Parliament. For remedy the Bill proposed to wipe out all the existing statutes and to substitute for the law courts a new and independent Compensation Board with exclusive jurisdiction and apparently final and unlimited powers of awarding compensation. The Board was to consist of a legal chairman, two representatives of employers and two of trade-unions, one medical and one financial expert. Its function would be the simplified duty of ascertaining the fact of injury and tendering the victim the appropriate sum out of a single new Accident Fund to which all employers would contribute. Winding up the debate for the Government, Mr. GEOFFREY LLOYD, Under-Secretary of State for the Home Department, offered the observations which we summarised last week (p. 1242). He thought the criticism of doctors had gone a good deal too far, though he was willing to agree that medical views of nystagmus, of which much had been said during the debate, had changed considerably in the past generation. He realised the objection to part-time referees, but pointed out that there is need of referees who are on the spot and are of high professional standard; in some districts there was not an unlimited supply of medical men and they had consequently to be used for more than one purpose. The question of a possible right of appeal from the absolute decision of the referee is apparently being considered at this moment by the valuable interdepartmental committee over which Judge STEWART presides. The committee, which is investigating several of the problems (including nystagmus) raised in the discussions on the Bill, is taking evidence from all sides, from trade-unions, doctors, lawyers, and officials. It was inevitable that Members of Parliament would prefer to wait till the committee's conclusions are available. Mr. Mainwaring's Bill was, he said, revolutionary. The proposal to oust the jurisdiction of the county court and hand all compensation disputes over to a novel non-judicial tribunal was in itself far too startling for the average legislator who thinks that the usurpation of judicial functions by bureaucratic bodies has already gone far enough. The Bill was rejected by a slender but sufficient majority; it will doubtless reappear anon. Meanwhile the views of its supporters should be pondered. It would be a pity if all trade-unionists were encouraged to believe that the hand of every doctor is against them.

ANNOTATIONS

THE CINEMA IN PSYCHIATRY

THE cinema, penetrating every side of everyday life, is being used increasingly in medicine, and has proved serviceable for recording and analysing neurological abnormalities. Broadly speaking, the most useful neurological text-books are those most profusely illustrated, for the study of many photographs of *main-en-griffe*, *main-de-prédicateur*, the various types of dystrophy, and other such problems in differential diagnosis brings home to the reader the essential points in the anatomy and pathology of these disorders. In the allied department of psychiatry the problem is very different. It is on the language that the patient uses or does not use, rather than his appearance, that we form conclusions about his instability, the danger he presents to himself or others, the seriousness of his condition, and its probable duration. Such language may be described but cannot be reproduced effectively in any text-book, and the newly qualified practitioner must chiefly rely on recollections of what he gleaned on a few expeditions to mental hospitals during his student career—expeditions that are not very likely to have left him with clear ideas of the fundamentals of psychological medicine. In such hospitals there is often an immense mass of teaching material, but it can seldom be presented in such a way as to be assimilable. In the talking cinema, we suggest, psychiatry has an instrument not only for entertaining the mentally afflicted, but also for educating the uninitiated. Visits to mental hospitals will still be necessary, but clinical lectures implemented by cinematograph demonstrations to which all can attend—and not merely the few near the patient in the hospital—must impress the essentials of psychiatry on those who both see and listen. They would see the methods the psychiatrist adopts to reveal the disordered thinking. The lecturer could during the silent course of the film draw special attention to the important points without arousing the absent patients' antagonisms or sensibilities. Moreover, by presenting in succession a depressive with hypochondriacal delusions and much affect, a schizophrenic with such delusions and no affect, and an anxiety-laden neurotic with gastric symptoms of a conversion type, certain important points in differential diagnosis could be exemplified.

The clinical demonstration of cases of psychoneurosis is a matter of difficulty and delicacy. But a film could well be made to show some of the methods of elucidation and persuasion with which the milder forms of these disorders are tackled. Such a film might be of first-class educational value.

HELIUM IN THERAPEUTICS

THE low specific gravity of helium as compared with nitrogen (the relation is 2 to 14) has led to the use of this gas as a diluent for oxygen in certain types of dyspnœa. A. L. Barach of New York has recently set out [1] the theoretical basis for the use of helium, adding some clinical observations of his own. The substitution of helium for nitrogen in a volume of air provides a respirable gas mixture which is one-third the density of air. During quiet breathing the influence of this substitution is negligible, but with obstruction in any part of the respiratory tract there may be a saving of effort when the lighter gas mixture is substituted. The technical problem is to exclude nitrogen from the apparatus and to control the percentage of helium. For short periods of administration, such as half to three hours, a closed circuit (rebreathing) apparatus has been used with a mouthpiece or mask. At the beginning nitrogen is washed out of the lungs by a rapid flow of the helium-oxygen mixture (about 15 litres per minute), and the first few breaths are exhaled through a two-way valve. After this the apparatus is fed with the helium-oxygen mixture at the rate of about 4 litres per minute. For more prolonged administration a modification of the oxygen tent made with helium-proof fabric has been employed. In the treatment of asthma, particularly for the patient in status asthmaticus to whom adrenaline and other measures have ceased to give relief, the use of the helium-oxygen mixture has given prompt relief both objectively and subjectively, probably because of the decreased respiratory effort required for pulmonary ventilation with the lighter gas. In patients with obstructive conditions of the trachea, larynx, and bronchi, the use of this new gas mixture has also produced beneficial results in some instances thereby averting tracheotomy. The value of helium with oxygen in emphysema, associated with bronchiectasis or fibrosis or both, is shown by certain records which indicate that smaller concentrations of oxygen are necessary to produce similar restoration of pulmonary function when helium is used as the diluent. The cost of helium may at the moment prevent its more general use, but Dr. Barach explains that a Bill has already passed certain stages making Government helium available at a cost comparable to that of oxygen in the United States. After Dr. Barach had related his experience it was pointed out that in certain clinics anæsthetists are already using helium-oxygen mixtures. In Boston when operations upon goitre are in question it is usual for the anæsthetic apparatus to have a cylinder of helium attached.

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[1] Jour. Amer. Med. Assoc., Oct. 17th, p. 1273.

AN EXHIBITION OF BRITISH ARCHITECTURE

THE Royal Academy is preparing for January and February, 1937, an Exhibition of British Architecture in the Twentieth Century, in which it hopes to show, in a wide variety of examples and without restriction as to style, the best work done by British architects in the past thirty-six years. The work will be classed in six main sections—Domestic, Civil, Monumental, Commercial, Ecclesiastical, Bridges—and will consist for the most part of the architects' own working drawings, illustrated by photographs, perspective views, and models. A retrospective section, surveying British architecture from the seventeenth century, will be included. A representative committee of members of the Royal Academy and other well-known architects has undertaken the selection of the works. Architects who wish to offer one or two examples of their completed work for the choice of the committee in any of the classes mentioned are requested to apply without delay to the secretary, Royal Academy of Arts, Piccadilly, W. 1, for forms and instructions as to sending in works. With the extensive construction, reconstruction, and reconditioning that is now taking place in hospitals, an exhibition giving examples of modern work and theories should be of high value to the medical profession.

THE HEART IN VITAMIN DEFICIENCY

THE fact that there is often cardiac enlargement in beri-beri has attracted attention to the possible relationship of disorders of the heart to deficiency of vitamin other than B. Claims have been made for a scorbutic basis, for example, in cardiac rheumatism, and even vitamin-D deficiency has been suggested as a possible cause of cardiac enlargement in young children. Rabinowitz and Rogers[1] now report a remarkable example of chronic avitaminosis in a four-year-old child with serious affection of the heart which became quite normal following adequate treatment. This child, who had been late in sitting and standing, had been fed on a thoroughly unsatisfactory diet in which the solid elements consisted of some bread, jelly, and cake, the only other food or medicine taken being milk and Karo syrup. When he came under observation there was severe anæmia, hæmorrhages round the gums, fever, and muscular flabbiness. The most important findings, however, were in the cardiovascular system, of which the following is a description: "the pulse was rapid, small, and irregular with the presence of a transitory gallop rhythm. A precordial thrill was present. The area of cardiac dulness was markedly extended to the left axilla. Loud blowing systolic and diastolic murmurs were heard over the mitral area transmitted to the axilla and back, and entirely obliterating the heart sounds. A blowing diastolic murmur was noted in the pulmonic area transmitted down the sternum. The aortic first sound was louder than the aortic second sound, while the first pulmonic sound was softer than the second pulmonic sound." X ray examination of the chest showed much enlargement of the heart shadow. The child was confined to bed and given a varied diet rich in vitamin C accompanied by liver concentrate, iron, and a concentrate of vitamin D. After quite a short period the temperature dropped to normal and the anæmia improved, and after six months the patient was discharged in good health with no evidence whatever of cardiac disease, this regression being confirmed by a normal radiographic appearance of the cardiac shadow. Perhaps the most interesting feature of this unusual case lies in the evidence afforded that murmurs such as those mentioned may occur in the absence of valvular disease.

A NATIONAL DENTAL SERVICE FOR SWEDEN

GROWING attention has been paid in Sweden during the past twenty years to the possibilities of a comprehensive dental scheme on a national scale, and a committee of inquiry has reported to the Government. The proposals made by this committee, which are described by Dr. Nils Hellström,[1] are ambitious; for skilled dentistry is to be available for every Swede, irrespective of income, from the cradle to the grave. Dental work of a purely æsthetic character does not, of course, enter into the scheme, but otherwise there seem to be no limits to the dental welfare envisaged. It is anticipated that ultimately the public dental service will assure an annual overhaul for all who want it, but this will not be realised until the scheme has been adopted throughout the country. The actual extent of dental caries in different parts of Sweden is unknown, and a survey would have helped the committee to calculate the amount of work likely to be required in each dental area; but the cost of such an investigation was considered prohibitive, and the committee has had to be satisfied with an approximate estimate according to which a dentist employed by the public dental service would devote 1000 hours a year to school dentistry and 1100 hours a year to other dental activities. Some 425 dental districts would be created, staffed by 575 district dentists and 40 assistants. Each district dentist would be aided by at least one dental nurse, who would be entitled to a pension. Provision is also made for the dental care of the insane and mentally defective, for prisoners and the occupants of hospitals and sanatoria. It is calculated that this scheme will cost the State 4,658,000 kronor (£256,500) a year, the local authorities 2,034,500 kronor, and the four principal towns with more or less independent health organisations 408,000 kronor.

CHEMISTRY OF DERMATITIS

IN a paper read last month to the London section of the Society of Chemical Industry,[2] Mr. H. E. Cox, D.Sc., points out that dermatitis is a biochemical problem requiring collaboration for its solution. The question is why does the dermatitis resulting from one of the chemicals in Dr. Cox's list, or from simple salt or sugar, from cement or turpentine, continue for months or years, long after every trace of the causal irritant has been swept away? There are of course answers in plenty, but nearly all of them rest on a basis of theory that is hard to put to the proof. One great exception that escapes mention in his otherwise admirable summary is the experimental work of the late *Bruno Bloch*, so far the most significant achievement in this difficult field, in that it definitely fixes the site of the reaction we term dermatitis in the epidermal cell, and thus renders experiments on permeability "to the underside" of the skin as performed by Cox, Francis, Sachs, and others of questionable value. On the other hand certain substances undoubtedly have great powers of penetrating the skin, and it must not be forgotten that the blood and tissue fluids can to some extent "dissolve" volatile oils or other irritant substances and thus cause dermatitis from the "underside." Dr. Cox classifies such noxæ into four main groups: (1) reducing agents, (2) oxidising agents, (3) substances affecting oxidation-reduction processes, and (4) special poisons such as arsenic. This classification has the merit of simplicity and serves both the biochemist and physician. Dyes are thereby relegated to the third group, although, as he remarks, it is impossible to form a clear picture of what happens, and the wide variation of individual susceptibility adds another difficulty. Those interested will be glad to have Dr. Cox's list of textile dyes, 25 in all, that have been experimentally found to cause dermatitis or irritation, and among them will be noted picric acid, malachite-green, and methyl-violet, the first still used by many surgeons as a skin disinfectant and in the treatment of burns, the two last by dermatologists in 1 per cent. aqueous or weak spirit solutions mainly in the treatment of eczematised mycotic infections. Speaking broadly it seems that the more soluble the dye, the more likely it is to cause trouble, especially in the presence of weak acid. Of particular interest and importance is a paragraph on hair dyes, of which it is stated, on the authority of C. Griebel, that no less than 10 million packets are sold annually in Germany alone! Worth remembering too is the assertion that henna dyes are by no means always innocuous, since they are sometimes mixed with "pyrogallol or a diamine." On another page of our present issue Dr. Semon shows that the current practice of shading the eyelids must be added to the list of cosmetic hazards.

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[1] Rabinowitz, L., and Rogers, E. J.: New. Eng. Jour. Med., Oct. 1st, 1936, p. 621.

[1] Bull. mens. de l'off. internat. d'hyg. pub., August, 1936.

[2] Jour. Soc. Chem. Indust., Oct. 5th, 1936.

THE OUTLOOK IN ADVANCED CANCER

Two recent evenings at the Royal Society of Medicine were given up to consideration of the management of advanced malignant disease. In his presidential address to the section of surgery Prof. Grey Turner recalled a remark he had made in his Murphy oration six years ago that there is a real risk of a generation arising who are ignorant of what surgery can offer in the treatment of cancer. From long experience and mature consideration he was prepared to say that the outstanding feature about the treatment of malignant disease is the not infrequent great success of its local removal. But, he added, it must be the aim of the operator to remove the whole of the affected part together with a wide area of healthy tissue and the path of probable malignant invasion. The surgeon must visualise the extent of the proposed interference and plan the incisions so that the parts are thoroughly exposed under the guidance of the eye. During the whole operation he must keep to the demarcated tissue and not come nearer the growth than was originally planned, and there must be no niggardly dealing with the tissues in proximity to the primary focus. The area of lymphatic invasion to be removed must include not only the lymphatic glands that may be expected to be involved but those in which there is even a possibility of involvement, and this removal must include the soft tissues in which they lie and the intervening lymphatic channels between the primary growth and such glands. Throughout such an operation all manipulations must be deliberate. Good cancer surgery was bound to be time-consuming, and he suggested that operations successfully practised by such men as Halsted and Lawson Tait had never been fully described. It was the full account of an operation and the detailed notes of progress which were needed for real education in surgery, and in the hope of dispelling some prevalent pessimism he went on to give details of cases which he had himself followed for many years—cancer of the rectum alive and well thirty years after operation; endothelioma of the gum removed sixteen years ago, and followed six years later by carcinoma of the rectum which was in turn removed, the patient being now alive and well; with other examples of extensive operations for cancer of the breast, of the colon, and of bone. Even the continued attack on recurrences might be of immense benefit to the patient.

The second occasion was the visit of Prof. Hans Holfelder of Frankfort-on-Main to the section of radiology on Nov. 20th. The mode of action of X rays on cancer cells was, he was satisfied, mainly an effect on the cell nucleus and he made the interesting suggestion that in certain cases damage to the genes might have a lethal effect upon the daughter and grand-daughter cells while leaving the cells actually irradiated apparently unaffected—thus accounting for the cases in which the tumour only begins to disappear some time after irradiation. For the lethal effect on the cancer cell it was the quantity and not the quality of the radiation that was the important factor. The optimum voltage was 180–200 kilovolts, and nothing was to be gained by the use of higher tensions. Fractionation of the dose was all-important, and he did not believe in the superiority of the low-intensity irradiation of the Coutard school. Above all adequate dosage was necessary if the best results were to be obtained, and this meant that skin reactions have frequently to be taken to a stage which looked alarming to the uninitiated. At the same time that technique should be chosen which produced the least possible general effect upon the patient. If this was done benefit could often be obtained even in very advanced growths and even when the disease had become generalised. In Holfelder's clinic only the metastases causing the most serious symptoms or that constitute the gravest threat to the patient's comfort are irradiated and it was, he said, often observed that untreated metastases regressed pari passu with those treated. Specially gratifying were the results obtained with secondary deposits in the bones from carcinoma of the breast, in which cases five-year survivals were not uncommon. In carcinoma of the breast 22 per cent. of the primary inoperable cases survived 5 years and 36 per cent. of the post-operative recurrences were alive after a similar interval. The 5-year survival-rate with post-operative prophylactic irradiation was 53 per cent. He was very satisfied with his results in bone sarcoma, of which only the osteoblastic type was sometimes radioresistant. The osteoclastic sarcomas, whether endosteal or exosteal, gave good results. Even metastases in the lungs from bone sarcoma were not necessarily fatal. On the other hand giant-celled sarcoma was often truly malignant and tended to be radioresistant.

Dr. N. S. Finzi, who followed Prof. Holfelder in the discussion, instanced cases of secondary deposits in the mediastinum following carcinoma of the breast that were well 10 years after radiation treatment. One patient, who originally had bilateral supraclavicular and mediastinal metastases, was alive and well more than 12 years after treatment. For the treatment of the more sensitive growths such as lymphosarcoma the regional X ray bath had been developed with success at St. Bartholomew's Hospital; many patients with widespread disease had been given thereby additional years of life. Rapidly growing tumours should, he felt, be regarded as radiological emergencies; they were often so sensitive that their response to treatment was almost immediate and a day's delay might make all the difference between metastasis and its avoidance. But even when metastases had occurred palliation might still be obtained by X ray treatment. Prof. Woodburn Morison agreed with Prof. Holfelder that there was probably no quantitative difference in the effects of different qualities of radiation. There was nothing that radium could do that X rays could not.

THE MEDICAL STAMP DUTY INQUIRY

In 1929 the revenue from the sale of patent medicine stamps was £1,320,780; from that peak it dwindled year by year and by 1935 the revenue had fallen to less than £750,000. In the meantime it is obvious that the sale of such medicines has increased substantially. This is the case for inquiry and the Select Committee of the House of Commons which began to hear evidence on Thursday last week should have little difficulty in touching the spot. When Lord John Cavendish, then Chancellor of the Exchequer, introduced in 1783 the tax on medicine, he estimated that it would yield the "surprising" sum of £15,000, and his estimate was not far wrong. In the first two years of last century the yield was £14,000 and £14,790 respectively, and it is significant that Scotland contributed only £78 and £94 to these sums. From that time onward the revenue began to grown until in 1914 it reached £360,375. The rate of duty was doubled in 1915 and it was not until 1919 that the revenue reached the million mark, after which the demand began to run wild. Then began a search for lawful means of evading the duty. It was discovered in a judicial ruling that medicines the composition of which was declared were not subject to duty if sold by registered chemists and druggists. One after another, the owners of proprietary medicines began to take advantage of this exemption and altered their labels to the extent of indicating upon them the names of the ingredients of the pills and potions. That, however, did not render the goods non-dutiable if they were sold by shopkeepers who were not chemists, and the strange situation arose—and is still with us—under which patent medicines are sold by chemists in packages bearing no stamp and by ordinary shopkeepers in packages bearing a stamp. Strange as this anomaly may appear, it is not in discord with the intentions of the framers of the legislation, for Lord John Cavendish, in introducing it, said, "I shall require all persons who sell medicine and who were not regularly bred to the profession of doctors etc., to take out a licence, and this being done there will be a duty of 8 per cent. laid on the medicines." But Chancellors of the Exchequer do not like to see revenues going down when expenditures are going up.

LIMITATION OF OPIUM PRODUCTION

At the last meeting of the Assembly of the League of Nations which closed on Oct. 10th, attention was specially directed to the limitation of production of raw opium. It was realised that the alarming development of clandestine manufacture of narcotic drugs, to which illicit traffickers resort, renders the limitation of production of the raw materials increasingly necessary. Allowing a yearly average of 240 tons of raw opium as being required for the legitimate manufacture of drugs, and some 300 tons said to be necessary for making "prepared" opium, the world-requirement for what are deemed legitimate purposes is put at 540 tons a year. On the other hand the world-production of raw opium in 1933 was not less than 1530 tons and in 1934 not less than 1080 tons. Difficulties in the way of such limitation of production have been urged by the fact that whereas the manufacture of drugs from opium is limited to some 60 factories in 15 countries, the cultivation of the opium poppy concerns hundreds of thousands of farmers over an area of 100,000 hectares without including China. The other opium-growing countries are Afghanistan, Bulgaria, Greece, India, Iran, Japan, Korea, Turkey, Soviet Russia, and Yugoslavia. It is however anticipated that agreement may be arrived at with those responsible for drug factories which receive the raw material, as well as with the monopolies dealing with opium for smoking and thus bring about limitation of the market for these permitted purposes. Accordingly the Assembly, at length convinced that the limitation of raw materials constitutes a decisive step in the League's campaign against the abuse of narcotic drugs, is urging all governments to furnish the advisory committee, before Jan. 31st, 1937, with replies to the questionnaire that has been addressed to them. Two preliminary conferences are to be summoned as soon as possible by the advisory committee, one to be composed of representatives of countries producing raw opium for export and the other of representatives of countries exporting prepared opium for smoking and of countries having monopolies for the same.

A report made by the Permanent Central Opium Board indicated that in the year 1935 there was an excess of 2303 kg. of morphine manufactured, 68 kg. excess of heroin, and 269 kg. excess of cocaine. The quantity of morphine produced in 1935 exceeded the amount in 1934 by 4649 kg., that of cocaine in 1935 exceeded the amount produced in 1934 by 538 kg., while there was a decrease of 39 per cent. in the amount of heroin manufactured.

BCG AGAIN

If the Swedes have in some respects departed from the principles laid down by Calmette with regard to B C G and the route by which it is administered, they have more than made good their digressions from the path of conformity by supplying controlled tests. From a lecture by Prof. Israel Holmgren[1] of Stockholm it appears that expert Swedish opinion is on the whole definitely in favour of B C G vaccination. The most convincing evidence comes from the county of Norrland where Prof. Näslund supervised a large-scale test under the ægis of the Swedish National Association against Tuberculosis. Between 1927 and 1933 the children given B C G numbered 7765. The tuberculosis mortality was about five times higher among the controls than among those receiving the vaccine, and as all concerned were convinced that the conditions under which the children lived were approximately identical for the two groups, a favourable verdict could not be evaded. Prof. Holmgren uses the B C G provided by Dr. Anders Wassén of Gothenburg, and he has found that the abscesses easily provoked by large and superficial injections can be avoided by giving it subcutaneously in small doses and at long intervals. It can also be given with impunity by intramuscular or intravenous injection: with an experience of some 200 intravenous injections, Holmgren has seen no more serious reaction to them than a transient rise of temperature; but on the whole he prefers as a routine measure deep subcutaneous injections for adults. The vaccine prepared by Wassén contains 0·5 mg. of bacilli per c.cm., and of this Holmgren gives a minimum of 0·1 mg. and a maximum of 0·5. After describing the high and varied tuberculosis morbidity in the personnel of his hospital of recent years, he concludes that the way to reduce this morbidity is to treat every new member of the staff with B C G if he or she is tuberculin-negative; and he is inclined to extend this benefit also to tuberculin-positive entrants.

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[1] Hygiea (Stockholm), Oct. 31st, 1936.

ADVENTURES IN MEDICAL RESEARCH

Sir Robert McCarrison, delivering the Lloyd Roberts lecture to the Medical Society of London last week, took as his thesis that we shall only reach the final solution of the causes of human disease by studying its natural occurrence. Having devoted much of his life to medical research in the laboratory as well as among native populations in India, he was certainly not decrying the experimental method; but he told how actual medical practice had faced him with problems to solve, as in a detective story, and how by examining every clue he had led up to the discovery of one disease and contributed much to our knowledge of many others. He first went to India as an army doctor at the age of 23, and eighteen months later, in 1903, found himself stationed at a fort in Chitral. A regular outbreak of fever there at one season of the year had been set down as ague, but this diagnosis he was able to refute by the controlled use of quinine, for the sufferers recovered as quickly without the drug as with it. The fever did not correspond to any in the text-book and he set out therefore to make what deductions he could. It was a "place disease" contracted by troops at the fort, even if only visiting it for a few hours: it did not occur above a certain altitude, it was not contagious, and its appearance, disappearance, and distribution corresponded in a remarkable way with those of the sandfly. He inquired into local knowledge, sent for a microscope, and improvised incubators. Blood culture proved negative, transmission of the disease by nasopharyngeal swabs and blood injections failed, and repeated attempts to make sandflies transmit the fever met with no success. Transference to Gilgit prevented McCarrison from confirming his strong suspicion that the fly transmitted the illness, but this suspicion was proved correct by Doerr in 1906.

In 1903 also he began a survey of goitre. At that time little or nothing was known of its causation and so, as he said, he approached the task without preconceptions. He found that the distribution was geographical, the endemicity varying from village to village and from house to house. Observing that nine villages in a group were affected with goitre according to the degree of pollution of their drinking-water, he was led to try the effect of intestinal disinfectants. The drugs, thymol in particular, did cure early cases. He proceeded to test the goitrogenic quality of the water by arranging that 36 men, including himself, should consume large quantities of suspended matter separated from the water; 10 of the volunteers, including himself, developed goitres, while 31 others living in similar circumstances but taking boiled suspended matter did not develop it. The association of low iodine content of the soil with the occurrence of goitre found commonly in other parts of the world was not invariable in India, and he had tackled this problem by finding out the normal size of the gland in large numbers of animals and then building on this basis a series of large-scale feeding experiments on animals. The outstanding conclusion from these investigations was that there were many factors: polluted water; intestinal infection; fats, fatty acids, and lime in excess—all these had a goitrogenic action. Deficiency of other substances, of vitamins A, C, and probably B, of protein where vitamin A was deficient, of phosphates where there was excess of lime, and deficiency too of iodine had the same effect. There were therefore positive and negative factors in the causation of goitre.

Experiments on beri-beri, begun in 1913 and continued after the war, others on urinary calculus and on gastric ulcer, combined always with clinical observation, enabled McCarrison to show up several causal factors in each condition. Some would envy him his opportunities for observations on a large scale, and hearing the tale when his findings have become common medical knowledge might forget the immense difficulties of breaking fresh ground. Others would hesitate to venture outside a laboratory where they can study one factor at a time; though many problems of field work would then remain unknown. Sir Robert's work has shown how happily the two means can be used by one who has the ability to use them, and how necessary they both are to the advance of knowledge.

A SECOND VOLUME

EARLY in the year a series of articles on treatment in general practice, which had appeared week by week in the *British Medical Journal*, were made accessible to a wider public in a volume which included the management of disorders of the respiratory system, acute infectious fevers, and cardiovascular affections. The second volume[1] now before us follows the same plan, its chapters being grouped under diseases of the nervous system, digestive system, blood and blood-forming organs, rheumatic diseases, metabolic diseases, and diseases of the kidney. Two articles on diagnosis have been included to illustrate points raised in the articles on treatment. The articles are written by well-known clinical teachers in various schools, each of whom was asked to give well-defined guidance to the general practitioner in handling a particular disorder. The two volumes form a useful vade-mecum for the newly qualified as well as for the older practitioner of medicine.

AT a meeting of congregation on Tuesday last Lord Nuffield said he understood that the money he has given to the University of Oxford for medical study and research was insufficient to produce the effect he anticipated. He would therefore increase his donation to £2,000,000; "for I would hate to leave this building with the feeling that that Scheme was not complete."

ON Thursday, Dec. 10th, at 2.30 P.M., Mrs. Meyer Sassoon will open the Mozelle Sassoon high-voltage X ray therapy department at St. Bartholomew's Hospital. Lord Rutherford, F.R.S., and Lord Horder will speak, and a memorial plaque to Dr. Ronald Canti, late clinical pathologist to the hospital, will be unveiled by Dr. Malcolm Donaldson, director of the cancer department. Current at a million volts will be available in the new installation.

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[1] Trea [illegible] Some Major
Disorder [illegible] al Journal.
Vol. II. [illegible] 26. 10s. 6d.

PROGNOSIS

A Series of Signed Articles contributed by invitation

CXXI.—PROGNOSIS IN BREECH PRESENTATION

(Concluded from p. 1228)

Prognosis to the Mother

BREECH delivery is for the mother associated with certain risks which, although very real, are scarcely capable of being expressed in terms of statistics. There is greater likelihood of difficulty than in vertex delivery, but it is also true that many cases—even those looked forward to with apprehension—are in the end uneventful, easy labours. Much depends on the *relative size of fœtus and pelvis, and,* as has already been indicated, it is impossible to gauge this with even reasonable certainty.

Labour in breech delivery usually lasts longer than average time, and on occasion—especially in the primiparous patient—it is greatly prolonged. This fact alone leads to complications. The patient may become physically exhausted at a relatively early stage, and obstetrical injury will follow premature attempts at interference. Equally well the patient may show undue mental exhaustion, and mental trauma may result from withholding the same interference which, from the strictly mechanical point of view, is considered inadvisable. The obstetrician may thus have a difficult task to "manage" the labour in the best interests of both mother and fœtus. Sedatives and analgesics such as opium should be freely given during the early stages; and throughout labour abundant glucose drinks will help to guard against dehydration and liver damage.

THIRD DEGREE TEARS

Of the obstetrical injuries suffered by the mother during breech delivery by far the commonest is a perineal and vaginal tear involving in many cases the sphincter ani, and resulting not infrequently in a complete rupture of the rectum. This most disabling injury is almost always the result of forcing the hand into the vagina in order to pull down extended arms. Since the vagina is already fully distended by the fœtal trunk, it is scarcely possible to carry out this procedure without serious injury to the mother. The preliminary performance of a generous postero-lateral episiotomy will, however, overcome much of the difficulty associated with extended arms, and all danger of rupture of the rectum will be avoided. Apart from complications such as extended arms, it is doubtful if even one in four primiparous patients escapes perineal injury during breech delivery. There is, therefore, good reason for the routine use of episiotomy in such cases. The clean incision can be stitched with far greater accuracy than the irregular tear of a perineal and vaginal rupture, and the end-results of healing are undoubtedly better. When to these reasons is added the benefit which the fœtus derives from the lessened stress of labour, there seems to be an unquestionable case made out for the routine employment of a postero-lateral perineal incision in every primiparous patient in whom the fœtus is not obviously less than normal size.

POSTPARTUM HÆMORRHAGE

Hæmorrhage after birth of the fœtus is not uncommon in breech delivery, and is the result partly of the prolonged labour with consequent uterine exhaustion, partly of the frequency with which deep anæsthesia is administered and continued even into the third stage, and partly of the presence of cervical, vaginal, and perineal tears. All means of checking hæmorrhage should be at hand, and injection of pituitary extract or of Ergometrine at once resorted to if there are signs of uterine atony. Direct injection into the uterine muscle through the abdominal wall is a particularly effective method of administering these drugs. Hæmorrhage from a perineal rupture is best treated by immediate suture of the torn vagina and perineum.

Prognosis in Prophylactic External Cephalic Version

Since breech delivery carries with it a grave risk of death to the fœtus, it is obvious that prophylactic external cephalic version is a desirable operation. The version should be performed after the thirty-fourth week of pregnancy; before that time it is scarcely necessary because the fœtus varies its position so often. After the thirty-sixth week the operation is increasingly difficult to carry out, although always worth attempting. It is sometimes said that if the fœtus has extended legs (frank breech), external version is impossible. This is not so, although the operation is certainly more difficult to perform than in the case of the full breech.

Many criticisms have been made of prophylactic external cephalic version based on the supposed dangers of the manipulation. These dangers have been dealt with by Norman White and J. D. S. Flew, who in 1933 reported to the obstetric section of the British Medical Association meeting in Dublin the results of 293 cases treated in the obstetric unit of University College Hospital. In a private communication the authors have kindly supplied me afresh with the figures submitted to that meeting.

Of patients after the thirty-second week of gestation, and including cases dealt with under anæsthesia, version was successful in 76 per cent. of the cases in the primiparous group, and in 94 per cent. in the multiparous group. The risk of premature labour being induced by attempts at version was found to be negligible when the operation was performed without an anæsthetic. With anæsthesia, premature labour occurred in 8 out of 40 cases. All these patients had already advanced to at least the thirty-seventh week of pregnancy. Amongst 201 versions performed without anæsthesia there was no instance of hæmorrhage occurring as the result of the manipulation; when the manipulations were performed under anæsthesia bleeding was provoked in 6 of 92 patients. The bleeding was never severe from the mother's point of view, but the associated placental separation was apparently responsible for fœtal death on two occasions.

These statistics are of great help in determining the merits of this simple operation. It would appear that there is always a slight risk of placental separation, but except in the very rare circumstance of the patient having an unsuspected placenta prævia, the danger is negligible provided that the manipulations are carried out with gentleness and care. Anæsthesia should be resorted to with reluctance, and only in cases in which the patient's nervousness and apprehension prevent muscular relaxation. It should not be used in order that a degree of force can be exerted which the unanæsthetised woman could not tolerate. If anæsthesia is used at all, ether or chloroform is required; neither evipan nor nitrous oxide give the necessary relaxation.

Finally, the occasional inability to perform version is not a confession of incompetence, for in a minority of cases the fœtus with its breech impacted in the maternal pelvis will resist all attempts at dislodgment. Having regard to the possible dangers, it can still be said that the benefits of this operation are so great that it should certainly be attempted as a routine in every patient in whom an abnormal fœtal position is discovered after the thirty-fourth week of pregnancy. By its use much maternal distress and fœtal mortality can be avoided.

Conclusion

The seriousness of breech delivery has been underestimated. It is not generally realised that the risk of death to a full-sized fœtus in a primiparous woman is higher than the risk associated with even the most major of the standard surgical operations. The fœtus faces a risk of death greater than does, for example, the patient who is to have a pituitary tumour removed. Because of this grave outlook, prophylactic external cephalic version should be performed whenever possible. The patient of forty or over who is pregnant for the first time, and in whom gentle attempts at version have failed, should be given the option of having her child delivered by Cæsarean section.

Lest the dangers and difficulties of breech delivery have been over-stressed, it must be stated that parturition is in many cases—even in the majority—an easy event requiring little or no help from the obstetrician. Perhaps for this reason the undergraduate student too often neglects the subject in the practical midwifery course, and prefers to spend time in learning details of the technique of forceps delivery. In my experience at least twice the time is required to teach the undergraduate student the elementary principles of breech delivery as is required to teach him the essentials of the forceps operation. Instruction and practice on the mannikin should be an important part of the training in undergraduate schools. For this purpose Prof. Dougal's porcelain model is excellent, for it permits of the use of a preserved fœtus—a far superior object for teaching purposes than the time-honoured stuffed doll.

Breech delivery can never carry with it a prognosis equivalent to that of normal labour. All too often it brings to the expectant mother a disappointment of cherished hopes, and to the medical attendant a humiliating experience. By implication the obstetrical training of our medical schools must often be held in reproach. Yet many of the dangers inherent in breech delivery may be lessened by simple means, and some of them may be entirely avoided. One thing is certain: statistics relative to breech delivery show beyond doubt that this obstetrical abnormality is in general regarded too lightly, and too often those methods of treatment are neglected by which the relatively grave prognosis for mother and child can be substantially improved.

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SPECIAL ARTICLES

MEDICAL LIBRARIES *

BY SIR HUMPHRY ROLLESTON, Bt., G.C.V.O., F.R.C.P.
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LIBRARIES and museums are important instruments in medical education and progress. They resemble each other as reservoirs of sound learning gathered from practical experience. This correlation of knowledge, shown by the oldest scientific museum in Great Britain—the Ashmolean Museum (1679) at Oxford—which was under the same roof as the library of natural history and philosophy, and also by the original British Museum (1754) in Bloomsbury, the natural history part of the museum being moved to South Kensington and opened in 1881, was confirmed, as regards medicine, by the Army Medical Museum which contains the Army Medical Library.†

Another resemblance is that verbal descriptions and illustrations in books and atlases reproduce specimens on the shelves of museums; and conversely complete accounts of such morbid specimens, the latter being "the original documents" (Keith), should include the clinical details.

The earliest repositories of records—the representatives of books—were either in temples because in all civilisations the priesthood has been par excellence the learned class, or in palaces, because rulers often patronised literature and art. Chambers for the storage of records in the form of inscribed tablets and cylinders of baked clay were discovered by Sir Henry Layard in 1850 in the Assyrian palaces of the Kings Sennacherib, Esarhaddon, and Ashur-banipal, going back to 700 B.C. The subsequent history of libraries in ancient Greece, Alexandria, Pergamos, and Rome has been discussed by J. W. Clark.

Museums, especially medical museums, were a more modern development. It is true that the first recorded institution to bear the name of "museum" (temple or haunt of the muses) was that founded at Alexandria about 300 B.C. by Ptolemy Soter (367–283 B.C.); but this did not conform to the modern meaning of the word, for it was an academy or meeting place for learned men (Flower). John Hunter's great collection in the eighteenth century exerted a powerful influence, as shown by the activities in the last century of Sir Astley Cooper (1768–1841) of Guy's Hospital, Sir Benjamin Brodie (1783–1862) of St. George's Hospital in London, by Sir Henry Acland (1815–1900), who from 1845 taught the preliminary medical sciences with the help of a museum at Oxford, and by Sir George Humphry (1820–96), who adopted the same method in Cambridge. The relative importance attached to medical libraries and museums has varied to some extent from time to time, no doubt as a result of the enthusiasm of prominent authorities. Physicians have usually turned more to libraries, and surgeons done more for museums, but this is far from being a rigid rule. Rarely has the same man whole-heartedly and equally promoted them both; such, however, were the physicians Sir Hans Sloane (1660–1753), president of the Royal Society and of the Royal College of Physicians of London, whose collections of natural history, articles of virtu (69,352),

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* Extracts from an oration delivered in Washington, D.C., on Nov. 16th at a celebration of the centennial of the Army Medical Library. The latter part, not reproduced here, contained biographical sketches of the librarians J. S. Billings, Robert Fletcher, and Fielding Garrison.

† It may be interesting to note that by his will (1695) Anthony Wood left all his manuscripts and books to the Ashmolean Museum rather than to the Bodleian Library (founded 1598) of which he had been given the free run; was this evidence of ingratitude and in conformity with his difficult temperament, or of an unsuspected broad-mindedness?

books (50,000), and valuable manuscripts formed the nucleus of the British Museum, and Sir William Osler (1849–1919) whose generosity to many libraries, especially to his alma mater, Montreal, and his advocacy of medical museums is known to all.

About the middle of the last century the formation of museums was more keenly carried out than that of libraries, and may have represented a healthy opposition to mere traditional authority, and have been inspired by a preference for an appeal to the visible evidence or in obedience to John Hunter's admonition to Edward Jenner "Don't think, try." This advice is equally, if not even more, applicable now that functional disorder in medicine has taken a part, formerly almost monopolised by morbid structural change. The use of the experimental method in the elucidation of disease has tended to transfer the illustrations of disease from the pathological museum to the laboratory.

Medical libraries a century ago were generally those of individual medical men and, as in the case of the famous libraries of Richard Mead (1673–1754), and Anthony Askew (1722–74) in the previous century, were often sold and dispersed after the death of their owners. Those of institutions left much to be desired, as John Shaw Billings found to his discomfiture in 1860 in the United States. In the 'seventies of the last century when the Surgeon-General's library was coming to its second birth and rapid growth, the idea of medical libraries was stirring in North America, and in some instances, such as at Boston, quickened after a somewhat remote conception, and very probably by the activities of Billings.

I need not attempt to preach to the converted on the value and inspiring virtue of medical libraries, for this has been so conclusively set forth by Billings, by Oliver Wendell Holmes (1809–94) at the first opening of the Boston Medical Library in 1878, by Osler in "Books and Men," also at the Boston Medical Library when a new building was opened in 1901, and in 1926 at Cleveland in the charming address "The Doctor and his Books" by Harvey Cushing, Osler's pupil and Boswell, who could so convincingly have shown here and now how that tradition survives.

The Army Medical Library

The layman might be puzzled to explain why and how it came about that the surgeon-general of an army, however great, should have such a library as this attached to his office which is devoted more to active organisation and orders than to medical bibliography ancient and modern. The answer, clear to everyone here, is the personality of John Shaw Billings of the Surgeon-General's Office and the creator of its library. Originally a small collection of reference books for the use of the Surgeon-General (Joseph Lovell) in his office at Washington (according to Billings some time before 1836) it long remained in a state of suspended animation. In 1840 a manuscript catalogue listed 135 works (228 volumes); at the outbreak of the Civil War (1861) the number of volumes was between three and four hundred; on May 10th, 1864, seven and a half months before Billings came on the scene as the first person to be in any way—for he was only nominally not officially—responsible for the books, a printed catalogue showed a total of 1365 volumes; in another printed catalogue dated Oct. 23rd, 1865, the number had risen to 2258. Growth then became rapid; in 1868 the sum of eighty thousand dollars left over from the funds of Civil War hospitals was made available for the library, Billings being given discretionary powers; and on June 12th of that year a printed catalogue referred to 6066 volumes, showing that Billings had not lost any time in building up the library; in 1871 a catalogue, published in 1872, ran to 454 pages and showed that the number (13,380) had doubled. In 1873 a printed catalogue of 2468 pages in 3 volumes—the first two arranged under the heading of authors only, and the third containing anonymous works, transactions, reports, and periodicals, came out under Billings's direction. The library then contained 25,000 volumes and 15,000 separate pamphlets. It may be safely assumed that Billings was now steering straight towards the great conception ultimately achieved by the Surgeon-General's library and its Index-Catalogue. In 1876 the library contained forty thousand volumes and as many pamphlets, and in 1895, when he retired, the number had increased to 308,445.

Besides books, pamphlets, the valuable collections of 450 out of the estimated 600 medical incunabula (books printed before 1500), and of Paris theses unrivalled even in their native city, the library has five thousand portraits of medical men, and a collection of medical autographs to which Abraham Jacobi and Garrison made generous contributions. The Army Medical Library stimulated beneficial imitation, which charitably began at home, for in 1929 there were 200 medical libraries in the United States as compared with 118 in Europe.

From 1865 to 1887 the Army Medical Museum, not a fire-proof building which contained the library, occupied the old Ford's theatre in which Abraham Lincoln had been assassinated on April 14th, 1865. This soon became quite inadequate, and Billings, rising to the occasion, obtained funds, Congress appropriating 200,000 dollars, for the construction, according to his plans, of the present home of the Army Medical Museum, of which he was also curator, and of the library at the corner of Seventh Street and B-street (now Independence-avenue), S.W. This was successfully carried through in time to receive in 1887 the ninth International Medical Congress held at Washington.

History repeats itself, and the Army Medical Museum (up till 1922 always called the Library of the Surgeon-General's Office) has now, as happens sooner or later to active libraries, been faced for some time with the impossibility of further expansion on its present site which indeed is now wanted for the further development of Washington (Reynolds). What better way of celebrating the commencement of the second century of the library could there be than the erection of a new building so urgently needed and so thoroughly deserved?

The Index-Catalogue

A library is obviously an essential factor in the preservation of knowledge and history. It has, however, been rather pessimistically said that a library is a mausoleum where knowledge lies dead and mummified; this may be a real danger unless it is activated and kept alive by a guide to its contents. A library is not complete without a good catalogue—namely, one with the double entry of author and subject; and it is obvious that the larger the library the more fully will such a catalogue afford access to existing knowledge, especially when printed and distributed widely to other libraries. The Army Medical Library is the largest of its kind, and more current periodicals are devoted to medicine than to any other branch of science. As long ago as 1887 the library of the Surgeon-General's office obtained annually 700 published medical periodicals exclusive of those devoted to pharmacy and to dentistry. Since then they have become much more numerous; at the end of 1912 the total number of current periodicals were estimated at 1654; the library received 1895 annually in 1916, the number fell to 1240 in 1920, but rose to 1925 in 1927, and now is about 2000. Medical journals vary in their span of life; some are ephemeral, and there appears to have been a considerable mortality during the world war. Their fluctuating population is compatible with Bulloch's estimate that of the 23,000 items in the "World List of Scientific Periodicals," covering the years 1900–31, 5000 were medical. The bibliographical scope of the Index-Catalogue is therefore phenomenal, and widespread appreciation of its help is graphically shown by the worn state of the original bindings, or by new bindings, of its volumes in the medical libraries of Europe.

How does the Index-Catalogue compare with previous medical bibliographies which Osler prescribed as the best "float through posterity" for the authors? Conrad Gesner (1516–65), "the father of bibliography," supplied what was in some respects the model for the "Bibliotheca Osleriana" (1929), hailed by Prof. John Fulton "as the greatest achievement of the humanistic movement in medical bibliography." Albrecht von Haller (1708–76), the greatest medical bibliographer of the eighteenth century, dealt with botany, anatomy, physiology, surgery, and medicine. W. C. Ploucquet (1744–1814) of Tübingen attempted to provide a complete catalogue of medical literature in his "Initia Bibliothecæ medico practicæ et Chirurgicæ realis" (1793–97). Robert Watt (1774–1819), of Glasgow, published in 1812 for the guidance of his students at the Royal Infirmary, "a Catalogue of Medical Books." This led to his ambitious and posthumous "Bibliotheca Britannica, or a General Index to British and Foreign Literature" in four volumes in 1824, covering law and other subjects in addition to medicine, thus reverting to the status of the scholar-physicians in the sixteenth century when medicine and the natural sciences formed part of the equipment of learned men. The labour thus entailed is said to have been responsible for the death of Watt and later of two of his sons. Thomas Young (1773–1829), physicist, Egyptologist, and physician, the most comprehensive genius and man of science who ever entered the medical profession, brought out in 1813 "An Introduction to Medical Literature, including a System of Practical Nosology." A. C. P. Callisen (1787–1866), a Danish surgeon, in the 33 volumes of his "Medicinisches Schriftsteller-Lexicon" (1830–45) dealt exhaustively with medical publications from the middle of the eighteenth until the end of the first quarter of the nineteenth century. A comic relief to these many-volumed works might be supplied by the "Medical Bibliography" (1834) of James Atkinson (1759–1839) of York who gave up the task after the letter B; and it has been shrewdly suspected that he never had any intention of carrying it further. It abounds in witticisms after the manner of Sterne's "Tristram Shandy," and has earned for him the title of "a disciple of Rabelais" and as well qualified for residence in the Abbey of Thélème.

Without in any way detracting from the services of these bibliographical fathers it is obvious that the life of a Government department or public institution is potentially perpetual and not limited by the relatively short span of an individual life. Other medical bibliographers were described by Osler as lilliputian as compared with the gargantuan character of the Index-Catalogue.

Among bibliographies that of medicine now takes a very high if not the highest place. As largely responsible for bringing this about the "Index-Catalogue of the Library of the Surgeon-General's Office"—which is beyond any comparison the most exhaustive medical bibliography ever undertaken—and the "Index Medicus" have made the whole medical world, especially English-speaking readers, hopelessly insolvent debtors.

The history of the Index-Catalogue began in Billings's brain from his experience in 1860 when the need for such a bibliography was painfully forced on his notice, and it is probable that he began to form plans after being given in 1868 a practically free hand with the fund of eighty thousand dollars; the catalogues published in 1872 and 1873 led up to the definite proposals in 1876 contained in his "Specimen Fasciculus of the National Medical Library, under the Direction of the Surgeon-General, United States Army." This was submitted widely to universities, libraries and medical men for criticism and suggestions. It was arranged under both authors and subjects, and so far-seeing that its style and arrangement were practically those subsequently adopted in the Index-Catalogue. It was warmly welcomed in his dedicatory address at the opening of the Boston Medical Library in 1878 by Oliver Wendell Holmes, who correctly prophesied that a liberal appropriation by Congress to carry out such a work for this advancement of sound knowledge and the improvement of human conditions would greatly redound to the honour of the nation.

THREE COMPLETE SERIES

The first series of the Index-Catalogue began in 1880 when Congress, then urged by Abraham Jacobi (1830–1919) made the first appropriation for this purpose, and its sixteen volumes came out yearly, closing in 1895; it indexed 85,663 author titles, 151,504 pamphlets, of subject titles 168,587 books and 511,112 journal titles. It was edited by Billings, who in the last volume spoke of it as "a labor of love," with the coöperation of Fletcher, who supervised the proof-reading and devised the abbreviations of the periodicals. As criticisms of an adverse character of the Index-Catalogue have been extremely rare, reference may be made to what Billings said in 1891, when the first twelve volumes of the first series had been published—namely, that the chief serious errors were those of omission, and that of these about fifty had so far been detected. In the final volume Billings gave a list of the errors, and remarked that "there are few medical writers now living who have not sent to the library at least one pamphlet." In the last volume of the second series (1916) the librarian, Lieut.-Col. C. C. McCulloch, jun., repeated this statement with a wider application—to all members of the profession—namely, that "few physicians have not donated some book, pamphlet, or reprint of their own composition."

The second series consisted of 21 volumes which were issued between 1896 and 1916, and were edited by Fletcher until his death in 1912. It was then completed by Garrison and Allemann.

The third series (1918–32) consisted of ten volumes and indexed medical literature up to the end of 1925, under the direction of Albert Allemann, who was principal assistant librarian from 1922 to 1932.

THE FOURTH SERIES

At one time it was arranged that the Index-Catalogue should come to an end with the third series. This would have been a bibliographical catastrophe of the first magnitude and have required some corresponding substitute, such as a clearing-house of knowledge under the League of Nations. But fortunately in the following year anxiety was relieved by Surgeon-General M. W. Ireland who, after receiving and considering opinions from various sources, announced that another series would at once be undertaken. In the recently issued first volume of this fourth series some changes have been made: the abbreviations have been shortened; in the references the volume numbers are in arabic instead of roman type, the arabic numbers being printed in bold-face type, and the use of eponymous titles in the nomenclature of diseases is avoided as far as possible, an example which it is hoped will be widely followed. An important factor in the success of the Index-Catalogue has been the way in which the difficult task of separating the chaff from the wheat has been carried out. The decision of what articles should be included has probably presented less difficulty from that of exclusion, for a paper manifestly unorthodox and badly expressed may yet contain an idea or observation destined to be most important.

The Index Medicus

This famous and invaluable monthly bibliography of the world's medical publications, though long a close companion and immediate supplement of the Index-Catalogue, was never an official government periodical, and therefore depended for financial support on its sales, thus causing its devoted editor, Fletcher, much business worry. In Garrison's words (1913) "the work of copying out the library cards for redaction was parcelled out, as the celebrated Haller did with his eighteenth century bibliographies of medicine, among the wives and daughters of the library force as private work." It became a sort of annual Index-Catalogue in miniature and, like the larger work, had a double entry of subject and author. Starting in January, 1879, a year before the first volume of the Index-Catalogue appeared, it came out monthly until May, 1899, when it sank in financial deep water; for, in spite of the help it gave medical writers, its subscription list was never large, much less sufficient to meet the expenses of publication. Many of us, it must be feared, regarded the Index Medicus and the Index-Catalogue as natural blessings, like fresh air and sunshine, and did not realise that gratitude should take a more practical form than passive expectation of their continuance. Three more volumes (1900–02) were brought out under the title "Bibliographia Medica (Index Medicus)" in Paris with the support of C. Potain (1825–1901), G. Debove (1845–1920), Charles Richet (1850–1935) with Marcel Baudouin (1860–) as editor-in-chief. In 1903 the Index Medicus was given a fresh lease of life by the wise generosity of the Carnegie Institute of Washington, which had been incorporated in 1902 with Billings as vice-chairman of the board of trustees. The Index Medicus continued until 1927 when it was amalgamated with "The Quarterly Cumulative Index to current Medical Literature," published since 1916 by the American Medical Association, under the title of "The Quarterly Cumulative Index Medicus," the Carnegie Institute and the American Medical Association both giving their support. Billings and Fletcher edited the twenty-one volumes of the first series (1879–99), and Fletcher, who had previously been mainly responsible for the editorial arrangements, was editor-in-chief for the nine years 1903–12, with the active help of Garrison, who completed the second series (1903–20) without any co-editor. The third series (1920–26) was edited by Garrison and Albert Allemann who both joined, as associate editors, the board of the Quarterly Cumulative Index Medicus, Garrison resigning in June, 1929, a year before he was retired from the active list of the army.

Librarians

Like many other lovers of literature, whole-time librarians usually lead secluded lives outside the ambit of the limelight. The ideal librarian is a saintly, self-denying character with a keen interest not only in books but in their would-be readers, whose time he saves thereby helping them, rather than himself, into print and prominence. He thus obeys the precepts and follows the example of Henry Bradshaw (1831–86), librarian of the University of Cambridge, England, from 1867 to 1886; this particular office, it may be mentioned, was for three centuries (1278–1577) held by the University chaplain, an arrangement possibly appropriate as combining the care of the soul with that of the mind. Librarians in medical libraries often play a ghostly part in the contruction of books and papers. The number of medical men who have been whole-time librarians of medical libraries is small; but in the United States what may have been lacking in quantity has been more than made good by quality. To three bibliographer-librarians of the Army Medical Library tribute is most justly due—Billings, Fletcher, and Garrison; for, like the history of the world, that of this great library is the biography of its great men.

PUBLIC HEALTH CONGRESS

AT a session of this Congress held on Nov. 20th the chair was taken by Sir LAWRENCE BROCK, and a paper on the organisation of

Recreations and Amusements in Mental Hospitals

was read by Dr. R. EAGER. He described how he had visited Dutch hospitals and introduced a similar occupational system into the Devon Mental Hospital with the result that 75 per cent. of the patients became systematically employed. Idle hands would always find mischief, and the organisation of interests in non-occupational therapy hours needed attention. The occupation should not be called work, must be free from monotony, and be a complete change if it were to constitute a recreation. Physical drill classes had proved most successful, and there was no need to seek an instructor outside the nursing staff. The class must be kept small; the activities could be those of ordinary Swedish drill, and deep-breathing exercises were good. Organised games had been used successfully in some mental hospitals; elevens and fifteens must, however, be composed of patients and not largely of staff. Dances were popular in the winter; it had long been the custom to urge patients to join in. Walking parties resembling flocks of sheep were strongly to be deprecated; parole partly took their place, but apathetic and introspective patients should be taken in small parties for country walks.

In the provision of amusements, also, every effort must be made to get patients to coöperate. Often recreation halls were too small. Inter-ward parties and competitions might be organised. Wireless and the cinema were essential in every hospital, but must be controlled. Occasional escapes from reality into the film world were good for everyone, but must not become a habit nor a refuge. Films which reacted on the emotions should be excluded; many patients were profoundly affected by what they saw on the screen. Staff concerts were very popular and did much to take the patients out of themselves. Theatre managers were always sympathetic to hospitals, and would no doubt extend this attitude to mental hospitals if approached in the right way. Recreational therapy called for extensive organisation and coöperation and real enthusiasm. More individual treatment and less herd treatment was the stepping-stone to further advancement in the treatment of mental disorder.

PHYSICAL FITNESS THROUGH EXERCISE

Dr. R. **Ström-Olsen** said that exercise should form an integral part of an organised system of occupational therapy in every modern mental hospital. It exerted its influence both on the physical and on the mental health. Exercises of effort, such as weight-lifting and sprinting, developed the qualities of concentration, alertness, neuromuscular coördination, and economy of energy. Exercises of endurance, like walking, running, and rowing, had a greater effect on circulation and respiration and on the capacity to deal with fatigue products, and in the long run produced more constitutional vigour and physical robustness. Every mental hospital should possess a gymnasium, especially for winter use when outdoor exercise was impossible. The most essential requirements were parallel bars, trapeze bar, flying rings, vaulting box and springboard, ropes, high jump outfit, Indian clubs, dumb-bells, skipping ropes, medicine balls, and padded mats. Basket ball had the advantage, among games, of being playable indoors. Patients for physical drill classes should be carefully selected and graded. Extreme emotional depression was aggravated by forcing patients to join a class, and the attention was too defective in maniacal excitement. Much could be done for dementia præcox cases by diverting energy from the phantasy life. Three grades were convenient: "A" grade consisted of newly admitted psychoneurotics, mild psychotics, and convalescents; "B" grade of chronic patients, perhaps demented, but with enough interest and coöperation; and "C" grade of excited, difficult, and repressed patients. Promotion from one class to another accompanied improvement. C grade could do simple drill, marching exercises, and medicine ball in the open air or entertainment hall. Music was a great help, and the exercises must be varied. It was useful to have a nurse or two to help the instructor. The results of tact and perseverance were surprising and gratifying. Suitable patients in the higher groups should be allowed to take the instructor's part at certain times. Folk dancing was often successful.

Every scheme should allow adequate proportion of exercises of effort and of endurance; the optimum ratio was discovered by experience. Mental results varied according to the case, but were usually quite definite. Stubborn negativism could often be overcome more readily by rhythmic exercise than by any other means. Restless over-active cases might be benefited by an hour's informal exercise or play, followed by an hour's walk in the evening, engendering natural sleep and minimising the need for sedatives. In a few months the saving on narcotic drugs among 60 female patients had been £15 and no hypnotics had been given at all. Many dementia præcox patients could be brought into contact with their surroundings by music, rhythm, and the urge to imitation, especially in group drill and ball throwing. Once the vicious circle of negativism and self-absorption had been broken, the time was ripe for the occupational therapy class. Exercise was a useful adjuvant for the benign and recoverable case, but must be subordinated to individual needs. It was applicable to all neuroses except perhaps severe anxiety with panic.

DISCUSSION

Dr. H. **Dove Cormac** (Parkside) spoke of the value of special costumes: bright-coloured skirts and shorts. Two-thirds of the patients were over 45 years of age, and the use of strenuous games was therefore limited. Nor were they of the social class accustomed to playing tennis and badminton. One benefit of regular games and exercise was that the number of breakages had greatly decreased. At Parkside they were not ashamed to show their refractory wards to visitors.

Dr. J. **Macarthur** (Bracebridge) pointed out that "recreation" and "amusement" were defined as "an agreeable occupation" and "a pleasant diversion." Patients in mental hospitals had more leisure for playing games than they had ever had in their lives before, and many of them did not know how to play any game. For physical drill, cases should be very carefully selected by the medical officer, and music and proper kit were essential. A band was one of the most important features in a mental hospital. A cricket team from each ward, playing an American tournament throughout the summer, awakened interest. Five-a-side football matches, seven minutes each way, were useful. Dancing instruction in the wards encouraged nervous patients to take part in the weekly dances. Any entertainment by children was popular. Ward parties had always been a specialty at Bracebridge. Champions at all kinds of games were selected from each ward and competed with each other, the winner getting a prize from the chairman at the Christmas party. Patients wanted a refuge from the wireless. A small ciné camera to make and show pictures of local events was very successful. A supply of periodicals was very important, and local papers and Sunday papers should not be forgotten. A great event was the Old English Fair, with plenty of noise and infinite variety of side-shows, tests of skill, and gambling devices.

Dr. A. C. **Hancock** (Maidstone) said that Barming was the third oldest mental hospital in England but, apart from that handicap, had very fine traditions which helped to create a good atmosphere. His committee were very keen, and let him get on with his work without worrying him. If the coöperation and interest of the nursing staff were obtained, the job was done. It was part of the training of nurses to go thoroughly through the occupational therapy department. The result of putting a football or string-cricket ball in the ward gardens had been marvellous; fears of broken windows and flower beds had not proved justified. In bowls and darts the patients' teams held their own in competitions.

Dr. J. I. **Russell** (North Riding) stressed the fact that the value of physical exercise was not limited to improved physical fitness. Games improved coöperation with others and should lead patients to think well of themselves. The spirit created in the hospital benefited every patient and the staff as well. Many patients would not make use of equipment provided for them, but would soon become keen if the nursing staff joined in. However willing the staff might be, they must have time for the work; the proportion of nurses to patients must be increased. The daily segregation of large numbers of patients in fenced enclosures was humiliating and inconsistent with the principles of therapy. The evil of the airing court must be abolished. Playing fields were generally too small; ten acres should be the aim. It should be possible for bowls, croquet, and tennis to be played at the same time as cricket. Male members of the staff playing games should be considered to be on duty so as to be covered against injury. Holiday camps were helpful features.

Dr. P. K. McCowan (Cardiff) pointed out that man was a social being, and recreational therapy tried to reach the patient through his social interests. Recreation had been used for many years, but the modern idea involved systematic investigation into the reactions of the patients. It was a process of readjustment, re-education, and resocialisation. Drill, dances, and games were but the instruments, and the individuals who used them would decide the results, rather than the instruments themselves. For success there must be genuine enthusiasm.

The Chairman stressed the importance of the difference between providing facilities and organising.

Dr. D. Reid (Hellingly) suggested that the life of the mental hospital had been very dull and uninspiring in the past. If the patient's environment was "dull, idle, apathetic, and indifferent," his mental state could not be expected to be otherwise. In winter there should be a minimum of four entertainments a week. Club nights had proved successful; the sexes mingled informally and could smoke and play games. Whist drives were valuable. In the summer there should be three or four games available every day, and evening amusements for those who disliked early bed. The results of this therapy were general happiness, avoiding of dementia, and immense reduction of sedative drugs.

Alderman Lock (Newcastle) urged the importance of allowing laymen to coöperate in these discussions; and asked if there had been an improvement in the recovery-rate as a result of this therapy. Committees wanted to know what they were getting in return for the money.

Holidays for Mental Hospital Patients

At another meeting, when Sir Laurence Brock took the chair, Mr. E. W. Cemlyn Jones read a paper on the extension of holiday provision for working patients in mental hospitals. He recalled the recent improvements in the lot of mental hospital patients as regards food, clothing, recreation, and occupation, but regretted that in most public mental hospitals there was no provision for holidays. Four years ago the Central Association for Mental Welfare had begun to provide holiday facilities for patients in mental deficiency institutions. The association now had three holiday homes, at Bognor, Seaford, and Rhyl, and this year 1050 patients had had short holidays by the sea. A fourth home, at Redcar, would be opened next spring. They had now started taking working patients from mental hospitals with the happiest results. Chronic patients, of reasonably good behaviour, who had no homes to which they could go, had been received. The cost varied from 20s. to 25s. a week, and Mr. Cemlyn Jones discussed means by which this charge could be met.

Dr. Davies-Jones cordially supported the provision of these holidays, and thought they might be profitably extended to voluntary patients as well.

Place of Epileptics in the Community

Dr. Tylor Fox, in a paper on the need for community care of epileptics, pointed out that research into epilepsy, as well as its treatment, had concerned itself more with the occurrence of fits than with mental conditions associated with the disease, and that the social handicap from which so many epileptics suffered had received little attention. The care of epileptics in the community was nobody's business. Out-patient treatment of the chronic epileptic was unsatisfactory and incomplete. Often little notice was taken of the patient's mental condition, and still less of his status in his home or the community. If the hospital physician could work in coöperation with a social worker who had interviewed the patient and his relatives in the home, he would be able to give advice of value. He could then treat the epileptic as well as the epilepsy. The Central Association for Mental Welfare, Dr. Fox said, had recently carried out a most useful inquiry concerning epileptics in a part of Essex. They had found epileptics living in their homes in a proportion of nearly 1 per 1000 of the population, and admittedly this number was far too low. They had classified the epileptics into those who were mentally defective, those who were emotionally unstable or difficult, and the mentally normal. Personal visits had impressed the investigators with the gravity of the problems that arose in the home. Some of the problems could be dealt with by common-sense advice. Thus the attitude to risks arising from fits varied from excessive caution to frank neglect. Some epileptics were kept in bed or indoors all the time; others were allowed to ride about on bicycles. The problem of unemployment was widespread and less easy to deal with. The whole question could be regarded as one of mental ill health. Continued unemployment, resentment, and anxiety increased the fits, and increase of fits caused further mental deterioration. A vicious circle was set up with destruction of personality as the end. Anxiety with regard to fits, distress at their occurrence, and the burden of a useless and often difficult patient inevitably led to mental strain for other members of the household. It was often hard work for a household with an epileptic in it to be a happy household.

Dr. R. H. Crowley pressed for effective after-care for epileptic children leaving school. Some form of supervision should be given to epileptics living at home, and this the C.A.M.W. hoped to provide through local voluntary associations. Possible openings in employment should be carefully explored. For many, home trades would be the best, and here the Council for the Provision of Occupational Industries among the Physically Handicapped could be of great service in providing simple training. With the coöperation of the Home Office it would be possible to find home industries for many epilpetics. The C.A.M.W. had been impressed with the need, and were going to follow up their work in Essex, and to check the information obtained there by a further investigation in another area. The idea that epileptics should receive community care was a new one, but if carried out by voluntary agencies acting within the framework of the State, much might be done.

Mr. L. W. Greenhalgh deplored the fact that so many epileptics were in public assistance institutions. But colonies were few, and often badly placed geographically. He stressed the need for the after-care of epileptics leaving residential schools.

Dr. S. E. Gill believed that the incidence of epilepsy would be found to vary greatly in different districts. He had found that selected cases of epilepsy did extremely well when placed out under guardianship.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

ANNUAL MEETING OF FELLOWS AND MEMBERS

The statutory meeting of fellows and members of the Royal College of Surgeons of England was held at the College on Nov. 19th, the quorum of thirty being reached just as the clock struck 4 P.M. Sir Cuthbert Wallace began by welcoming those present to their old College, and then turned to consider salient matters in the report of the council for the year ended July 31st. The fellowship of the College, he remarked, increased year by year in prestige and appreciation. The primary examination held at Calcutta in 1935 was to be followed next year by a series of overseas examinations in Australia, New Zealand, India, and Egypt. He recalled the remarkable response to his appeal for new specimens to meet the needs of the museum which was visited last year by more than 10,000 people. The Groves bequest was keeping up the world-wide reputation of the College for anthropology. Mr. R. R. James's transcript of the apprentice books of Barber-Surgeons was now complete. He alluded again to the solution by the Bernhard Baron trustees of the provision for research work at Lincoln's Inn where the new laboratories would enhance the character of the work done. During the rebuilding the research farm at Downe and offers of bench space elsewhere were tiding over the difficulty of space for research work. He mentioned the award of Leverhulme research scholarships, and asked for more money for the purpose. The Imperial Cancer Research Fund was not, as sometimes supposed, an independent body but was really a laboratory of the two Royal Colleges; the site at Queen-square had outgrown its need, and the work was to be transferred to Mill Hill in the autumn of next year. The College had, more than any other agency, given support to the Radium Beam Therapy research. He recalled the award of the honorary College medal to Dr. J. A. Murray, and of the Walker prize to Dr. E. L. Kennaway. Sir Cuthbert concluded with some account of the reception of Paris surgeons at the College in the summer, a visit which would be returned next year.

Mr. Redmond Roche (M.R.C.S., 1894) referred to the shelving of the proposal for a diploma in dietetics. The College should, he thought, recognise certain weaknesses in the armamentarium of the general practitioner. He would like a standing committee of the licensing bodies to consider the instruction of doctors and students in matters specially useful to them in practice. Suitable questions, e.g. on dietetics, might be put in examination papers.—Mr. Richard Gillbard (M.R.C.S., 1892) asked who selected the guests from among the members for the Buckston Browne dinner. The President replied that the curriculum conference was now closed but those who set the examination papers would bear in mind what had been said. "Specialist" questions were put from time to time. The selection of members for the dinner was made by a committee of the council.

Representation of Members

Dr. Gilbert Ormé (M.R.C.S., 1899) then moved:

> That this forty-sixth annual meeting of Fellows and Members of the Royal College of Surgeons of England again affirms that the Members, who constitute ninety per cent. of the College, should have some representation on the Council, a similar resolution having been passed forty-five times and never once lost.

It was, he said, almost incredible that for 47 years the members should have knocked without avail at the door of the council chamber. So convincing were their arguments that the resolution had never been lost. He could discover only one answer, namely, that the council were not conscious of any widespread desire for representation on the part of the members; but in the 1930 postal census in which 12,542 voting papers were sent out 6936 votes were cast for representation and only 156 against; and that in a profession which had the reputation of committing nearly all official correspondence to the wastepaper basket. Appeal to common sense having failed, he now appealed for fair play. Among the members who constituted 90 per cent. of the College surely there were some who could be of help to the specialists with their knowledge of general practice, e.g., the surgical questions in industrial practice, such as strained back, that led to wider fields of investigation. He would like the College to give a lead to the education of the public in the matter of quackery, osteopathy, and chiropraxis. It was the general practitioner who came into contact with these things; members should confer with fellows upon them, and regain some part of the freedom they enjoyed before the year 1843.

Dr. P. B. Spurgin (M.R.C.S., 1898), who seconded the resolution, spoke of the increasing atmosphere of friendliness at this meeting. We know, he said, there is a feeling among the council that the interests of the common herd should be represented. Other bodies had their direct representatives; they had enhanced the prestige of the General Medical Council. The British Medical Association stood for democracy; in that body every member could rise to the highest position. He likened the situation to the outline of a quadruped of which the skull (being the council) was filled with the best grey matter but had no value without the backbone (being the general practitioner). They were not asking even for the whole backbone, they would be content with the caudal appendage; there were times when it might stand upright and even wag, but there was no risk that it would ever wag the dog. The time had come, he felt sure, to give some representation to the members who could produce some of the best brains in the country. If that required an amending Act the Society of Members would gladly contribute towards the expense.

In the discussion which followed Mr. Howard Stratford (M.R.C.S., 1899) suggested that when surgery was so big and complicated it was difficult for pure surgeons to keep in touch with everything. What about a gas attack, for instance? Did the council know all about measures for that?—Dr. A. E. Blackburn (M.R.C.S., 1904) said he had no criticism to make of an excellent report but he criticised the motion. He did not believe in democracy—just because the tail did control the head. But there was, he thought, no harm in occasional coöption by the council of members on a committee dealing with this or that.—Mr. Gillbard (M.R.C.S., 1892) asked what was really the attitude of the fellows on the council; "we are unable," they say. But

2300 fellows could not represent 20,000 members. Members might, he thought, set up their own parliament—and organise their own dinners.—Mr. GRAYDON HUME (M.R.C.S., 1919) thought that finality had not been reached even in the Hunterian Museum, and the research farm was yet in its infancy. With the war cloud looming it would be useful, he thought, to realise the part that members would then play.—Dr. H. H. SANGUINETTI (M.R.C.S., 1897) said the College was excellently managed but the council was elected for surgery. Are examiners, he asked, specially suited to arrange the affairs of the profession? Whatever we think of the council we may still regret that members have no voice in their election.—Dr. C. L. BATTESON (M.R.C.S., 1898) asked if they might hear what objection to the resolution was raised by the fellows on the council.

The resolution being put to the vote the PRESIDENT declared it to be carried (in favour, 28; against, 6). "We all wish the College well," he said. How this is to be obtained is the question. Up till now the meeting had failed to convince the council of the need for change; but he recognised the friendly feeling present that day. With regard to unprofessional cults the College, he said, had opposed the Bill in the House of Lords at a cost of £920.

OXYGEN LAID ON

IT is notorious that the sight of an oxygen cylinder often depresses the patient; for the public still regard its use as a last resort. On the other hand, oxygen often has its greatest value in the early stages of illness (e.g., pneumonia) when it may reduce the effort of breathing and the burden thrown on the heart. Hence there is much to be said for any new method of giving it that will arouse less alarm or despondency. The arrangements now made at the Royal Free Hospital, London, go far to obviate unfavourable emotional reactions, for the oxygen is brought in pipes to the wards and is obtainable at the bedside without fuss or difficulty. A system of pipe lines 3000 feet in length takes oxygen at low pressure to taps in seven wards, each tap serving a group of beds.

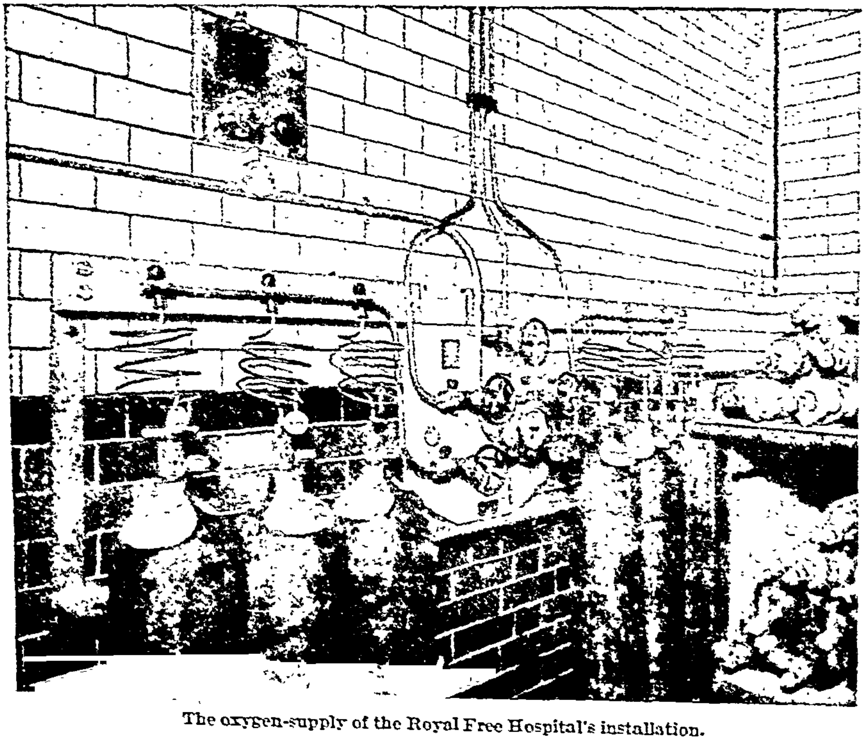
The source of supply is a group of cylinders in the porter's lodge; there are six cylinders each holding 150 cubic feet of oxygen, and they are arranged in a rack as shown in the accompanying photograph. By an arrangement of valves, either of two banks of cylinders can be connected to the pipe lines. In the centre of the control panel is a pressure gauge fitted with an electric contact that closes when the pressure falls below 100 lb. per sq. in. The closing of this contact sounds a buzzer mounted above the left-hand cylinder manifold, and at the same time lights a lamp. The porter on duty then takes the necessary steps to restore the pressure, either by putting another cylinder on the line or by changing over to the other manifold.

The high-pressure pipe-lines, which are of welded construction, travel outside the building as far as the points where they enter the wards. The mains then pass through the brickwork into the back of a reducing valve, which brings the pressure down to about 20 lb. per sq. in. The tubing in the wards is carried out with lighter-gauge copper tubing with soldered sleeve joints, small screw-down valves being provided near each group of beds. These valves are arranged to take a length of rubber tube that can be connected to any simple apparatus for administering the gas, or to an oxygen tent or other apparatus.

The whole of the high-pressure mains are installed with welded connexions and were tested to a pressure of 3000 lb. per sq. in. The seven wards now served contain 150 beds, and provision has been made for extending the service to four more.

As must be expected, the consumption of oxygen in the hospital has somewhat increased since the installation was put in; for oxygen is now used for patients to whom it might not otherwise have been given. This however is compensated for by the cheaper rate at which the large 150 foot cylinder can be purchased. The nursing staff, moreover, are relieved of the trouble of handling cylinders, and any risk attached to their use in the wards (explosion or fire) is eliminated. The saving in porterage and wear and tear on the lifts is also considerable; the porter's lodge, where the manifold is placed, is beside the roadway, and the cylinders thus have very little distance to travel to and from the lorries.

The installation was carried out by the British Oxygen Co., of Wembley, to the design of Messrs. Richards and Bright, consulting engineers.



The oxygen-supply of the Royal Free Hospital's installation.

ADVANCES IN CANCER RESEARCH

THE thirteenth annual report of the British Empire Cancer Campaign—a volume of over 300 pages—contains reports from nearly fifty different institutions and individuals whose investigations have received financial support. It is clear that many interesting results have been obtained during the current year.

ÆTIOLOGY

The various investigations into what may be called the fundamental problem of cancer fall into two clearly defined groups relating to the carcinogenic substances and to the virus tumours.

It has now become evident that the property of inducing cancer is not confined to the hydrocarbons having a phenanthrene nucleus, but is possessed also by other organic substances of quite a different chemical structure. A number of such substances having a nitrogen atom in their molecule have been synthesised in the research laboratory of the Royal Cancer Hospital, and one of them is remarkable in that it produces hepatomata when applied to the skin. It appears now that the problem of the chemistry of carcinogenesis is much more complex than was believed recently, and that the variety of tumours arising naturally in different organs might possibly be due to the formation under abnormal conditions of a variety of carcinogenic chemical substances. The knowledge that certain pure organic components produce malignancy when introduced into the body naturally opens up the question of the fate of these substances in the organism. This has been investigated by several workers, Dr. P. R. Peacock in Glasgow, Dr. C. C. Twort in Manchester, and Dr. I. Berenblum and Mr. L. P. Kendal, Ph.D., in Leeds, with the same result—namely, that these substances rapidly disappear from the site of injection and that this disappearance is due not to a rapid elimination but to a chemical change. Perhaps the most interesting, because the most unexpected, observations are those made by Dr. A. Haddow of Edinburgh. He found that the injection of carcinogenic compounds into animals bearing transplanted tumours greatly slowed the growth of these tumours, whereas substances chemically closely related but devoid of carcinogenic property had no such effect. This inhibition of growth is not specific for tumours, but can be demonstrated also for the normal growth of young animals, although it is relatively less striking.

The nature of an entirely different carcinogenic agent—namely, the agent present in the so-called filtrable fowl tumours—has been investigated independently by Prof. J. McIntosh of the Middlesex Hospital and by Dr. C. R. Amies working in the Lister Institute, and the same conclusions have been reached. By means of special high-speed centrifuges it has been possible to demonstrate that this agent is of a particulate nature of a size similar to, but somewhat smaller than, those that represent the causal agents of such typical virus diseases as vaccinia and fowl-pox. By a method of fractionate precipitation Dr. Amies was able to prepare a suspension of this agent free from fowl protein, and such a suspension could be specifically agglutinated by the serum of tumour-bearing fowls, in which an antibody to the agent could also be demonstrated by other methods. These two workers agree that the evidence so far obtained justifies the conclusion that the agents of these filtrable fowl tumours are of a virus nature.

It is important to bear in mind that an immune serum for these agents is a very different thing from an immune serum for malignant cells. This is clearly shown by the fact that a serum which will inactivate a cell-free extract of a filtrable fowl tumour and which will also agglutinate a suspension of the agent has no effect on the living malignant cell, in which the agent is present. Indeed Prof. McIntosh states that an anti-cancer-cell serum cannot be prepared with any regularity.

Until recently filtrable tumours have been found only in fowls. They are all connective tissue tumours which have appeared spontaneously. Prof. McIntosh has been able to show that sarcomata induced by the injection of carcinogenic agents were also filtrable —i.e., they contained a virus-like agent. The present report records the remarkable fact observed by Dr. L. D. Parsons of the Royal Cancer Hospital that a sarcoma which has developed in a mouse after the injection of a carcinogenic agent is also transmissible by a cell-free extract. This is the first recorded instance of a filtrable malignant tumour in mammals. The tumour has, however, the peculiarity that its growth in the mouse is accompanied by conspicuous changes in the blood.

TREATMENT AND INCIDENCE

The biological and therapeutic effects of radium have been actively studied in a number of different institutions. The view hitherto generally accepted that cell division is the factor which determines radiosensitivity is now being questioned by Dr. J. C. Mottram. The clinical results obtained in the different hospitals are now for the first time tabulated in a uniform manner. This is a great advantage since a direct comparison is now possible. The results obtained in the Marie Curie Hospital by radiotherapy of cancer of the cervix are very striking. Using the 5-year survival-rate and the division into four clinical degrees of the disease, the figures for a 5-year survival for the first degree are as high as 85 per cent. They fall to 66 per cent. for the second degree, 32 per cent. for the third degree, and 10 per cent. for the most advanced cases, the result for all cases irrespective of the degree of the disease at the beginning of treatment being 37 per cent. of 5-year survival. Figures such as these are the best propaganda to encourage patients to seek medical advice early and they should put a stop to the foolish statements, so frequently made even by medical men, that no cure for cancer has yet been found.

Of other investigations of importance for the treatment of cancer the studies may be mentioned of Dr. Cuthbert Dukes at St. Mark's Hospital on the lymphatic spread of cancer of the rectum, and of Dr. G. H. Gray at St. Bartholomew's on the lymphatic spread of cancer of the skin and in mammary cancer. Dr. Gray, whose report contains some striking illustrations, questions the permeation of lymphatics by cancer cells. He holds that when cancer cells enter a lymphatic vessel they do not remain for any length of time within the lumen but are rapidly conveyed to a lymph gland. He warns against the danger of excessive palpation of malignant tumours, because this may hasten metastatic spread and he doubts the justification for extensive operations planned on the permeation theory in so far as they require the removal of deep fascia.

Lastly, reference must be made to the striking statistical charts prepared by Dr. Percy Stocks, medical statistical officer at the General Register Office, demonstrating great variations in the incidence of cancer of the more important organs in the different counties and boroughs of England and Wales, and to the statistical investigation by Prof. and Mrs. Kennaway on the remarkable increase in the recorded mortality from cancer of the lung. After discussing the factors possibly concerned, the Kennaways conclude that "no evidence has been found that tarring of the roads has affected the incidence of cancer of the lung upon the general population."

Great care has been taken in the difficult task of editing this report; and rightly so, because it ranks as an annual scientific publication. A study of its contents and of other recent publications of a similar kind leaves the impression that while the complexity of the cancer problem is increasingly evident each aspect of it is becoming better defined. Human ingenuity has rarely failed to solve a scientific problem when once it has been clearly and correctly formulated.

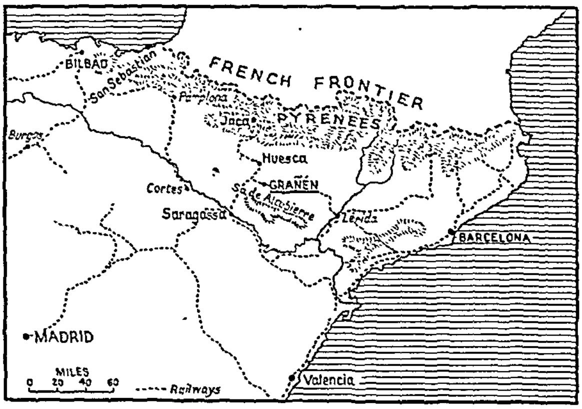
AN AMBULANCE IN SPAIN

THE following is a letter written by Mr. K. Sinclair-Loutit, a student of St. Bartholomew's Hospital, who went to Spain in charge of the ambulance unit sent out by the Spanish Medical Aid Committee. It is dated Nov. 6th.

"I am extremely sorry that your letter has not yet been answered, but we have been overwhelmingly busy. We have had up to date 1523 patients and our ambulances have gone about 14,000 miles. This, for two months' work, is not bad going, and has placed a very severe strain on all our resources. Of course, a large percentage of these cases are not very grave, but we have had days on which we have done twelve or fourteen major operations.

"The hospital is at Grañen, a small, dirty, ill-developed village in a key position behind a fan-shaped front. All the roads fall into it, and it is the railhead. It drains about 35 kilometres of front, it is the divisional hospital, and its prime duty is evacuation. We therefore only keep such cases as cannot be evacuated. We have a medical, a surgical, and a V.D. ward, with a total accommodation for 40 patients, which can be increased on emergency by a further 30. There are two theatres—one for major work, one for dressing—a receiving-room, and various other accommodations, the whole contained in a large, rambling house of feudal design. When we arrived (Sept. 8th) it was indescribably dirty and only half of it fit for habitation, and though in use as a clearing-station it was quite unsuited for medical work. We have now, in addition to carrying on our medical work, cleared over a thousand square meters of floor from dirt approximately one-third of a meter deep. Our working parties are just completing the clearance of the patio from many tons of accumulated dung. It is to be drained, levelled, and used for the parking and repairs of the ambulances. We have to do nearly all our own work here, as the man-power of the village is greatly reduced; 18 young men were taken by the fascists as hostages when they passed through the village, and most of the remainder are in the militia. Until recently in the kitchen all cooking was done over an open fire. The Spanish staff were first in awe of our Primus stoves and ovens, but are now delighted with them. We have also installed two coke ranges which seem to be unworkable without a skilled technician in continuous charge. There is no running water in the house, the supply of very dirty looking but not grossly contaminated water is brought daily by mule-cart. I have found a spring from which we now obtain quite pure drinking water. Similarly in everything we have had to start from scratch. Our drivers and orderlies installed electric light and built heating stoves and cupboards. Dr. Saxton (whom you may remember at Bart.'s) has proved himself quite a competent sanitary and civil engineer.

"We lie on a plateau between two ranges of mountains; to the right is Huesca which guards the pass to Jaca. It was there the Napoleonic invasion had one of its final reverses. To the left is the Sierra Alcubierre, in which there is much guerilla fighting. It is barren country, in summer dusty and mosquito-ridden, in winter cold, windswept, and approached through a sea of mud. It is interesting to note that right up to within one kilometre of the firing-line agriculture continues. I was out surveying the ground for a front-line dressing-station and was led by a daft guide across a field open to fascist machine-gun fire. We kept dodging about for over an hour, as the position was enfiladed from two posts. We were sitting behind a small breastwork when we saw a peasant staggering across the field bearing two enormous baskets of pimientos. He paid absolutely no attention to the fire till two-thirds of the way across, when he sat down to swear. His effrontery was only equalled by his luck, for he got across the field unharmed. It is now crossed by a communication trench, in which one of our field nurses got shot—quite lightly. Only a little further back they were harvesting. It is extremely dangerous to wear Red Cross emblems or display them on vehicles near the line, as they merely form a target for the fascist forces. Our stretcher parties have been fired on, and the hospital train has been bombed and machine-gunned from the air. Similarly the mere suggestion of the display of the customary Red Cross ground flag convulsed the local comite de guerra.



"I have just been called away to superintend the installation of a refrigerator for canned blood. It is put up in 200 c.cm. glass phials under gas pressure. This practice is converting transfusion from a luxury to a routine treatment in suitable cases. This also shows how our hospital has progressed in two months. At first only the crudest intervention was possible. Abdominal surgery was unthinkable owing to the dirt. Now, though the place doesn't look like Bart.'s, our theatres are on a par with those in any cottage hospital, and we can and do tackle anything.

"The hospital is of necessity polyglot; the Government forces contain in their ranks practical sympathisers from all European nations, so that in the wards one hears English, French, German, Italian, Polish, and Yiddish, though of course Spanish predominates.

"It is a tremendous social experiment this isolation of 29 English people, none of whom were previously known to each other. We are forced to live in conditions of considerable intimacy. We have turned two big granaries at the top of the house into dormitories where we sleep on mattresses or stretchers. On one occasion these had to be given over to patients and we worked our first 24-hour day. Cut off as we are, there are not many amusements, nor have we many books. We spend any spare time learning Spanish, listening to a wireless lent us by one of our Spanish interpreters, discussing the military and political situations and grumbling at the food, which on some days can only be described as bizarre. What we really need is a first-class radio, and a regular supply of newspapers, periodicals, and books. I believe a large consignment of food is on the way. Needless to say, there is a continuous call on the committee for money. You can help us greatly in that. There is also room for an absolutely first-class surgeon. Do you by any chance know of an ex-chief assistant who might fancy the job? Most of the major work is at present done by Dr. Aguilo, a very charming Spaniard.

"I have tried to compensate to some extent for the inevitable delay in answering, so I hope that this is of some interest to you. Thanks for your good wishes."

PANEL AND CONTRACT PRACTICE

The Year's Work

PRACTITIONERS

THIS is the time of the year when the chairmen of insurance committees give an account of the committees' doings during the previous twelve months. Two of the accounts before us have the added interest of being by medical men. Dr. D. Campbell, who is chairman of the St. Helens committee, says there are 32 names of principal practitioners and 6 permanent assistants in the local medical list, and that 18 practitioners are in partnership. During 1935 the sum of £18,218 was paid to practitioners for treatment, the 26 living in St. Helens receiving an average of £682 for treatment. The number of persons on doctors' lists at July 1st, 1936, was 42,949, the average number on the lists of doctors living in the county borough being 1610. Dr. E. A. Gregg, retiring chairman of the London committee, deals with 2143 practitioners in the metropolis who have on their lists 1,821,149 patients, the average number being 952 per list (excluding assistants), or 843 per practitioner. The sum distributed in respect of 1935 was £810,328, and the average amount per practitioner on the medical list was about £375.

In St. Helens 23 notices on the appropriate form were received from doctors claiming that they had rendered services outside the scope of medical benefit to insured persons on their lists, while in London the figure was 114, a much smaller proportion. The paradox is to be explained by the facilities available for treatment in hospital for Londoners requiring surgical treatment; it appears to be the exception for surgical treatment other than in its simpler forms to be given by London insurance practitioners. At all events, very few claims in respect of major surgery are made. Forms G.P.45 other than in respect of surgical, optical, or ray treatment are almost unknown, as the following analysis will show:

Ophthalmic services 75; ultra-violet rays 17; infra-red rays 3; diathermy 3; psychotherapy 3; surgical services 11; X ray service 1; radiant heat and massage 1. Six practitioners were concerned with the ophthalmic services and twelve submitted claims for the non-optical services.

The average cost of a prescription in St. Helens is 7·60 pence, and 2*s.* 11*d.* per insured person in respect of 4·59 prescriptions. In London a prescription cost 7·87 pence, and with an average of 4·85 prescriptions the cost per insured person was 3*s.* 3·24*d.*

REGIONAL MEDICAL OFFICERS

In 1935, according to the Minister's report, the total number of references in England to regional medical officers for advice as to incapacity for work was 444,964, of which 2117 were from insurance practitioners and the remainder from approved societies. Of these references 164,371 (37 per cent.) related to men and 280,593 (63 per cent.) related to women. The number of persons actually examined on incapacity references was 232,457. The number who were reported to have received a final certificate before the date fixed for their examination was 129,704, and 82,017 others did not attend for examination. Of the persons examined, 167,219 were reported as incapable and 65,238 as not incapable of work. Consultation references numbered 1047, of which 978 were from societies and 69 from insurance practitioners.

THE SERVICE

The number of insured persons entitled to medical benefit in England in 1935 was round about 14,994,000. Nearly 16,000 doctors were in insurance practice, and medicines and appliances were supplied as part of medical benefit at about 12,000 chemists' shops. The total expenditure on medical benefit was £8,917,300, of which sum insurance doctors received over £6,520,000 in respect of their duties of attending and treating insured persons, and £1,925,700 was paid to insurance chemists for the supply of drugs and appliances. It should, however, be remembered that from Jan. 1st to June 30th, 1935, the capitation fee payable to insurance doctors and the dispensing fees payable to chemists were still subject to an emergency deduction of five per cent. The remainder of the expenditure is accounted for as follows. About £204,000 was paid to insurance doctors in rural areas on account of mileage; £191,000 to doctors for medicines and appliances supplied by them personally or for medicines dispensed by them in country districts where patients are out of reach of chemists; £63,700 on account of insured persons who exercised their option to claim treatment (including medicines) through approved institutions; and £7900 on account of insured persons who were required or allowed to make their own arrangements for medical benefit. Nearly £7000 was set aside for other purposes—e.g., to enable country doctors to attend courses of post-graduate study—an outlay of £1100 enabled 45 doctors to attend short post-graduate courses; to provide

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GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index.

FROM A DOCTOR IN RETIREMENT

IV

I HAVE recently visited an exhibition of works of art which must be unique. It is a collection of genuine inn-signs which have been sent from all parts of the country to adorn the walls of a Bond Street gallery. Brave show though they make, these Boar's Heads, Black Bulls, Old Ships, Blue Boys, and Fox and Hounds, there is another and more important object in the exhibition than simply to amuse or instruct the sightseer. It is this: there is a growing tendency amongst some firms of brewers, and some of them are wealthy and important firms which should know better, to replace the old painted inn-signs by modern and vulgar ones, made of enamelled iron, on which are written the name of the inn. Instead of a noble painting of a square-rigged ship in full sail or of a pack of foxhounds in full cry, these unimaginative mass-production brewers have hung up in front of their premises what is no sign at all, but merely the name of the inn. Now this is altogether wrong. For one thing it is doing away with one of the few traces which remain of an earlier and more picturesque age, when every tradesman hung out a sign to inform the illiterate what goods he sold. The innkeeper is now the only shopkeeper or merchant who still keeps up this age-old custom. Surely it is a very short-sighted policy and misplaced economy on the part of the brewers to remove these old signboards, for a good painting representing a Man Loaded with Mischief, or that friend of the brewers the late Marquis of Granby, is far more likely to tempt a thirsty traveller to stop and enter and taste his ale, than is a commonplace enamelled plate. Fortunately there are certain enlightened brewers who are setting a splendid example, such as the Chichester firm of Henty and Constable, who employ a first-class artist, Mr. Ralph Ellis, to paint the signs on all their hotels and inns; and the Bury St. Edmunds brewers, Messrs. Green, King and Sons, whose principal sign-painter is Mr. E. M. Dinkel, and who take a great pride in preserving the signs on their houses.

Altogether and in every way this exhibition has turned out to be a great success. There is only one criticism which I venture to offer to the committee who organised it. They should provide a bar-parlour where the visitors to the show may get a tankard of ale to quench a thirst inevitable after gazing at four hundred and twenty-nine "pub-signs," every one designed with the praiseworthy object of stimulating thirst and inviting hospitality.

The belief by the human race in the occult, the un-understandable, is very, very old, and to judge from the constant crop of new remedies, new diets, faith-healers, and other much-lauded aids to health, is still as strong as ever. The practice of black magic is of profound antiquity, and the profession was mostly, if not exclusively, in the hands of women.

Amongst the odd grains of not very important news which have caught my eye in the newspapers is that this year is the bicentenary of the passing of the Witchcraft Act. The term witch includes, or included, many varieties of practitioner who exploited the foolish and the gullible—conjurors, sorcerers, quacks, diviners, astrologers, crystal-gazers, and necromancers. In all countries the witch was well known to possess magical powers; she could assume the form of other people and of animals; she was able to ride through the air, preferably on a broom handle or seated on the back of a bat.

The old laws against witchcraft were both pitiless and savage, and none more merciless than the ecclesiastical laws, particularly those of the Inquisition, which were framed to punish heretics. In England trials of witches were particularly frequent during the 17th century when there arose a professional class of witch-finders, who searched for witches and gave evidence in court against them. The originator and the most notorious of these witch-finders was Mathew Hopkins, son of the minister of Wenham in Suffolk. He had a smattering of the law, and in 1644 commenced his three years' career as a witch-seeker—"a trade never taken up in England till this." At first Hopkins was very successful. He proclaimed himself "Witch Finder Generall" and used to be invited by different towns in Essex, Norfolk, and Suffolk to search for witches. He and his two assistants, one a woman searcher, rode on horseback, and Hopkins's fee was twenty shillings for every town they visited. All the aged women, particularly those with a squint, or those who lived alone, were in terror when they heard that Mathew Hopkins the witch-finder was coming to their neighbourhood. It would sometimes happen that old women would come on their own account to be examined; "divers," says Hopkins, "have come ten or twelve miles to be searched, of their own accord, and hanged for their labour." The tortures and hangings of witches brought to trial by Hopkins were numerous. Sixty were hanged in Essex in 1644, and several at Norwich. In the same year sixteen executions took place at Yarmouth, and nearly forty the following year at Bury St. Edmunds, and others in Huntingdonshire. But the "Witch Finder Generall" was soon to overreach himself. He accused the octogenarian John Lowes, vicar for fifty years of Brandeston in Suffolk, of witchcraft, had him arrested and put to torture, when the old man "confessed" he had two "imps," one of which he had sent to sink a ship. For this he was found guilty and hanged at Framlingham, after reading his own burial service.

But at last Hopkins was to meet his match. The newly arisen witch-finder was the Reverend John Gaule, vicar of Great Staughton in Huntingdonshire. He believed in witchcraft but not in Hopkins. With great courage Gaule wrote a book in which he exposed the impostor. One passage in it runs: "Every old woman with a wrinkled face, a furr'd brow, a hairy

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country doctors with or to assist them to maintain facilities such as telephones, motor-cars, and branch surgeries; and to establish or maintain essential practices which would not otherwise provide a competence. In a few cases special grants as high as £275 have been made to doctors in remote and inaccessible districts. While of course these grants come out of insurance funds, it should not be overlooked that the recipients have been assisted thereby to provide medical service for uninsured persons as well.

lip, a gobber tooth. a squint eye, a squeaking voice, or a scolding tongue, having a rugged coate on her back, a skull-cap on her head, a spindle in her hand, and a dog or cat by her side, is not only suspected but pronounced for a witch." The bold author concluded that Hopkins's "signs" discovered "no other witch but the user of them." This hint was soon taken, and being brought to the notice of the judges of the Norfolk assize, Hopkins was put upon his trial as a witch, and underwent application of his own methods of torture to extract a confession. With his thumbs and toes tied crosswise he was thrown into a pond to see if he "swam" or sunk. He swam, sure proof of guilt according to the "Witch Finder Generall," and so Mathew Hopkins ended his short but profitable career on the gallows.

In his "Hudibras," it is to Hopkins that Butler refers as "a leger to the devil"

"Who after proved himself a witch
And made a rod for his own breech."

The last English trial for witchcraft took place in 1712, the last in Scotland ten years later. In France and Spain trials and executions for witchcraft continued until the end of the 18th century, and a woman was burnt by the Inquisition at Seville in 1781. Vast numbers of witches were tortured and executed for witchcraft during the 17th century on the Continent. One judge alone, Benedict Carpzor, is credited with having passed sentence on twenty thousand victims.

* * *

There is no better reading than a good biography, though I must confess I prefer those about men who have not achieved riches or fame. To me the lives of the failures in life are often far more interesting to read than those of super-men who have become famous. The obscure and the unsuccessful often appear to me to be more likeable and sympathetic characters than the Great and Good. It is this interest in the unhonoured which set me inquiring into the lives and doings of certain none-too-respectable members of our own profession. These are the surgeons who served on board buccaneer and pirate ships in the 17th and early 18th centuries, when these two similar callings were at their height. There was the Frenchman, Alexander Exquemelin, who qualified as a barber-surgeon at Amsterdam and sailed for several years with the buccaneers. It is to him we owe a large part of our knowledge about those extraordinary men who plundered and burnt the Spanish settlements and towns in Central and South America. His famous book, "The History of the Buccaneers in America," was translated into English from the Dutch and published in 1684. Another barber-surgeon who shaved the beards and bandaged the wounds of the buccaneers and who also wrote a book about his adventures was Lionel Wafer, whose "New Voyage and Description of the Isthmus of America" gives a very readable account of his captivity with a savage tribe of Darien Indians, and how he saved his life by successfully treating, by bleeding, the favourite wife of the chief. A fellow-captive of Wafer's was one Richard Jobson who, tired of the dull routine of a druggist's assistant in London, had run away to sea to become a buccaneer; a cut-throat calling which he combined with the study of divinity, carrying always with him "a Greek testament which he frequently read and would translate extempore into English to such of the company as were disposed to hear him."

A less lovable pirate was Dr. Peter Scudamore, surgeon to Captain Bartholomew Roberts, of the *Royal Fortune*. He did many things unbecoming one of his learned profession, as stealing the surgical instruments of a brother surgeon, and, what gave far greater offence, a backgammon board from a fellow pirate. He could speak the Angolan language, and was one day caught red-handed attempting to foment a mutiny amongst a hold-full of stolen slaves. At last the gallows claimed him, when he died penitent but unregretted, at a wholesale hanging of pirates at Cape Coast Castle in 1722.

Nor can we take any pride in the career of Dr. Bullock, who attended the buccaneers when they landed and took a town on the coast of Peru; for the doctor, while the plundering was taking place, became so drunk as to be unable to accompany the troops on their return march to their ship, and so fell into the hands of the Spaniards. But any sort of a doctor was a luxury in a Spanish settlement, so Dr. Bullock, although a prisoner, was allowed to practise his profession, and was indeed "civilly entertained, especially by the women."

These few notes about a few strange medical characters cannot be brought to a close without a word or two about the most remarkable of them all, Dr. Thomas Dover, who remains immortalised by the diaphoretic powder which he invented. He was an amazing character, who sailed, if not as a pirate captain, as a very open-minded privateer captain, and was the author of "The Ancient Physician's Legacy to His County," a book which ran into several editions, and in which he claimed that almost every ill to which the human body is subject could be cured by copious draughts of metallic mercury. Dr. Dover it was who marched at the head of his troops when they sacked Guayaquil in Peru, and when plague broke out amongst his crew he gave orders to the surgeons to bleed each patient in both arms and leave them bleeding until each man lost not less than a hundred ounces of blood. This heroic treatment Dr. Dover followed up by copious draughts of oil of vitriol mixed with lemon juice and water. Well might the physician boast of his success, for out of one hundred and eighty men down with the plague, all were saved but eight, whose deaths Dover attributed to the strong liquor they had been given to drink by their messmates. Another adventure in the life of Thomas Dover was his rescue of Alexander Selkirk, the original of Robinson Crusoe, from the island of Juan Fernandez.

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But I perceive that I am in danger of giving an overdose of these grains and scruples, so will retire once again into that rural obscurity to which I belong, and out of which nothing would have drawn me but the generous invitation of the Editor to contribute for one month to THE LANCET.

*** *During next month A Chronicler will be responsible for these columns.*—ED. L.

STAFFORDSHIRE GENERAL INFIRMARY.—The foundation-stone of the extensions to this hospital was laid on Nov. 7th by the Earl of Lichfield. The accommodation will be increased from 100 to 150 beds.

BOGNOR REGIS HOSPITAL.—Extensions costing £10,000 are to be made to this hospital as a memorial to the late King and permission has been received to rename it King George V Memorial Hospital. Originally a small building known as the Cottage War Memorial Hospital, the demands upon its 14 beds necessitated in 1932 the erection of a larger institution on the Chichester-road. This accommodation has also become insufficient, largely because of the number of road accident cases.

GENERAL MEDICAL COUNCIL

PRESIDENT'S ADDRESS

ON Tuesday Sir NORMAN WALKER opened the 144th session of the Council. After mentioning the appointment of Mr. Harold Collinson as representative of Leeds University on Prof. J. K. Jamieson's acceptance of the chair of anatomy at Trinity College, Dublin, he congratulated Sir Henry Dale on receiving the Nobel prize for medicine, and announced that the subject of education, "our primary concern" under the Medical Acts, will occupy the consideration of the Council at this and probably one or two subsequent sessions. He went on to quote from an address, describing the origin and development of the Medical Students Register, delivered by Sir Donald MacAlister at Manchester in 1906. In this address Sir Donald pointed out that there is absolutely nothing in the Medical Acts about the general or non-professional education of medical students, and nothing about matriculation or preliminary examinations. The Royal Commissioners of 1882 had agreed that every intending medical student ought to pass an examination in general education before entering on medical study and that the subjects of this examination should not be of a technical or professional nature; but somehow the necessary provisions for giving statutory effect to these recommendations were not formally embodied in the new Medical Act which followed the Commission. The recommendations practically described a system that had already grown up. The question had arisen: on what conditions shall a student be registered? What must he do before he is invested by the Council with the rights and privileges, if any, of a registered medical student? At a very early stage most, if not all, of the bodies providing medical education had insisted that every one of their own students should first show that he had enough general education to justify his admission to a liberal profession, and to profit by the scientific and technical training that prepared him for it. The Central Register had had no chance of acceptance by bodies like these unless it was based on the same principle. Thus the Council had been impelled to require a "sufficient" certificate of preliminary education as a pre-requisite to registration. Again the question of "sufficiency" led to the defining of a minimum requirement, and to the enumeration of the authorities whose certificates as a matter of fact fulfilled the requirement. Without its seeking, the Council had thus had to embark on inquiries concerning general as well as professional education, and indirectly to exert an influence on the former as well as on the latter.

Sir Norman Walker also announced that the Medical Council of India was not at present forwarding any proposals for recognition of the degrees of Indian universities additional to the proposals adopted last May.

A vote of thanks to the President for his address was proposed by Prof. A. W. SHEEN and seconded by Prof. J. W. BIGGER. Sir Norman Walker was re-elected President for the period ending November, 1939.

The Council then proceeded to penal cases.

PETERBOROUGH AND DISTRICT MEMORIAL HOSPITAL.—The sum of £10,000 has been collected towards the £45,275 required for extensions to this hospital. They include a maternity ward and pay block which are both urgently needed.

MEDICINE AND THE LAW

Damages for Professional Negligence against Doctor's Widow

IN Connolly *v.* Rubra a judge, sitting alone without a jury, has awarded £5000 damages against the widow of a doctor on the ground of his alleged negligence—a serious warning to the medical profession of the risks of posthumous litigation. The patient died of tuberculosis in 1933. The defendant, Dr. Rubra, was seriously ill when the case first came into court last June; proceedings were adjourned on that account and he himself died in July. It is reasonable to suggest that the defence was prejudiced by the absence of his evidence at the trial.

Mrs. Connolly complained, on behalf of herself and her two infant children, that Dr. Rubra had diagnosed bronchitis in December, 1930, had remained in attendance on her late husband till his death from tuberculosis in July, 1933, and during that period had failed to diagnose his true illness or to make sufficient examination for symptoms of tubercle. The defence admitted diagnosing severe influenza with bronchitis in 1930 and admitted death from tuberculosis, but denied negligence and denied that death was due to, or was accelerated by, any neglect or unskilfulness on Dr. Rubra's part. Mr. Justice Greaves-Lord observed that it was not enough to show that a doctor had failed to take as much care as other medical men might have taken, or even as he himself might have taken; the plaintiff had to show a failure to take reasonable and competent care in treating the patient. The judge found that from July, 1930 (six months before the beginning of the final illness), there had been blood in the sputum and a progressive loss of weight. Medical evidence agreed that the presence of blood indicated one special danger: so long as it was present, the possibility of tuberculosis could not be eliminated. The failure to have the sputum microscopically examined in 1930–31 was not a mere failure to take care, but an omission to take elementary care such as no medical man should have been guilty of; if that examination had occurred, tuberculosis would have been discovered in time for treatment to be possible. The radiogram, when it was taken, indicated tuberculosis in the early part of 1932 and possibly much earlier; it was not possible to assume that the disease was not present in 1931. The court held that, if proper steps had been taken, the disease would have been found in 1931; if so, it might have been arrested and the patient's life might have been much prolonged. In view of the change in the patient in 1932, there was no excuse in not considering tuberculosis in the early part of 1932 when there might still have been hope of arresting it. One of the medical witnesses indicated to the court the possibility of an alternative diagnosis. Had the case been a simple one, said the judge, he might have come to the conclusion that Dr. Rubra had formed the alternative diagnosis and had been justified in doing so. But, as Dr. Rubra's evidence could no longer be obtained on that point, the idea of an alternative diagnosis remained a mere suggestion. Thus we see how gravely a doctor's case may suffer by his death.

The court had to assess the financial consequences to the widow and children. Mr. Connolly was a civil servant employed at a salary just over £1000 a year, with the chance of promotion to a grade rising to £1400, with a pension at 60 of £536 5s.

and a gratuity of £1400. He was a delicate man; it was possible that he would not have responded to treatment and that his expectation of life might have been less than normal. The award of £5000 was apportioned as £3500 to the widow, £700 to the elder child, and £800 to the younger child. A stay of execution was granted, so that more may be heard of the case. The evidence for the plaintiff was carefully stated in the judgment. It was said that after severe coughing in 1930, the patient went to Torquay and, on his return, was told by Dr. Rubra that the cough would probably remain in the form of chronic bronchitis or catarrh. This was said to have deterred Mr. and Mrs. Connolly from further inquiry during 1931. During severe illness in February, 1932, when influenza was diagnosed, the doctor was stated to have accounted for the condition by suggesting tonsillitis or adenoids; night-sweats were attributed to rheumatism, and the idea of a second opinion was put aside on reassuring statements from the doctor that he himself was experienced in chest complaints. The sputum test was tried for the first time in February, 1932; when it proved negative, Dr. Rubra (it was alleged) took no further steps. Mr. Connolly was examined by a consultant in March, 1933, when a radiogram of the lungs left no doubt of the diagnosis; sputum tests confirmed it. The opinion on the radiogram was that the condition, though serious, was reasonably curable. Death took place, however, three months later. It will be observed that the failure to examine the sputum was regarded as the cardinal act of professional negligence.

Hospital Patients' Property

The Middlesex public health committee has, in consequence of the appropriation of the county hospitals, framed regulations for the refund of property found on patients. These are given in the *Public Assistance Journal* of Nov. 13th. They do not apply to any case where it is known that probate or letters of administration are being sought. Clothing and articles of no intrinsic value are returned to the nearest living relative. The wedding ring of a deceased patient, if the estimated value does not exceed £3, is returned to the widower or to an only child. Generally, if money or other property is claimed on the ground that it did not belong to the patient, the point is referred to the clerk of the county council for investigation and disposal. Otherwise money found on a patient or handed over by him for safe custody is returned to him or, with his formal consent or written authority, to such other person as he may direct. If he is not physically fit to consent, and if his wife or other dependant applies, a sum not exceeding £3 may be handed over to the applicant, provided that the hospital steward is satisfied that the applicant is such a dependant and is in urgent need. In the event of death in hospital, a sum not exceeding 30*s.* can be handed over to necessitous dependants; subject to this, there are special arrangements for funerals where the council holds money or valuables to the amount of £15 or upwards. In the latter case, either the relatives can arrange for the funeral with an assurance from the hospital steward to the undertaker that a sum not exceeding £15 will be reserved for this purpose; or, if there are no relatives or friends ready to act, the council will pay up to £15 for a private funeral; if the relatives or friends are willing to provide a private funeral and the amount in the council's hands is less than £15, the assurance to the undertaker will extend to the less amount. These arrangements for refunding seem reasonably simple and just. Inasmuch as legal complications are never entirely absent, applicants will probably take advantage of the permission to refer to the clerk of the council in cases which seem not to be covered by the new regulations.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Comdrs. O. D. Brownfield, O.B.E., to *Pembroke*, for R.N.B.; H. Hurst to *Pembroke*, for H.M. Dockyard; W. Flynn to *Victory*, for R.N.B.; A. J. Tozer to *Pembroke*, for Sub-Depôt, Sheerness; P. N. Button, O.B.E., to *Furious*; and J. C. Souter to *President* for course.

Surg. Lt.-Comdr. J. Cussen to *Exeter* (on recommg.).

Surg. Lt. R. W. G. Lancashire to *Exeter*.

Mr. G. M. Holliday of Leeds has been appointed Admiralty Surgeon and Agent for Leeds.

ROYAL ARMY MEDICAL CORPS

Lt.-Cols. A. C. Elliott and E. D. Caddell, M.C., having attained the age for retirement, are placed on ret. pay.

Majs. F. G. A. Smyth and K. P. Mackenzie to be Lt.-Cols.

Maj. W. I. FitzG. Powell is restd. to the estabt.

Lts. (on prob.) secd. under the provisions of Art. 213, Royal Warrant for Pay and Promotion, 1931: A. F. H. Keatinge, J. A. Manifold, W. G. MacDougall, R. A. Smart, R. J. Niven, and D. G. Levis.

To be Lts. (on prob.): W. D. Eustace, I. N. Fulton, N. R. Murdoch, and S. H. Gibbs, and is secd. under Art. 213 as above.

TERRITORIAL ARMY

Capt. A. H. Whyte to be Maj.

M. S. Campbell (late Cadet Sergt., Felsted Sch. Contgt., Jun. Div., O.T.C.) to be Lt.

Supernumerary for service with O.T.C.: Capt. R. F. Phillips (emplyd. Univ. of Lond. Contgt. (Med. Unit), Sen. Div., O.T.C.) resigns his commn.

REGULAR ARMY RESERVE OF OFFICERS

Col. H. R. Bateman, D.S.O. (late R.A.M.C.), having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

ROYAL AIR FORCE

Wing Comdr. T. J. D. Atteridge to Headquarters, R.A.F., Aden, for duty as Deputy Principal Medical Officer (Hygiene).

Flight Lts. A. W. Callaghan to R.A.F. General Hospital, Hinaidi, Iraq; and O. S. M. Williams to R.A.F. Station, Lympne.

Dental Branch.—Flight Lt. F. F. Kennedy to R.A.F. Depôt, Middle East, Aboukir, Egypt.

INDIAN MEDICAL SERVICE

Majs. to be Lt.-Cols.: G. R. McRobert and A. C. Chatterji.

Lts. (on prob.) to be Capts. (on prob.): P. A. Hubbard and F. E. McLaughlin.

Indian Medical Department.—Asst. Surg., 1st Cl., Osborne Halliburton Gade to be Lt. (Sen. Asst. Surg.).

Maj. (Sen. Asst. Surg.) K. W. Blinkworth and Lt. (Sen. Asst. Surg.) R. C. Ireland retire.

DEATHS IN THE SERVICES

Colonel JOHN COLPOYS CONNOR, who died on Nov. 16th at Hythe, Kent, was born in Ireland in August, 1867, the son of the late John Connor of Stoneyford, Co. Antrim. He was educated at Queen's College, Belfast, and the Royal University of Ireland and qualified M.B. R.U.I. in 1889. He joined the R.A.M.C. in 1891, became lieut.-colonel in 1913 and colonel in 1921, retiring in 1924. He served in South Africa, 1899–1902 (Queen's medal with two clasps, King's medal with two clasps), and in the European War, being mentioned in dispatches, and created C.M.G. in 1917. He had also acted as A.D.M.S., Salisbury Plain and South Midland Area. He married in 1906 Evelyn, third daughter of Francis Archibald Primrose of Torquay.

CORRESPONDENCE

BASES OF NATIONAL FITNESS

To the Editor of THE LANCET

SIR,—In your leading article of Nov. 21st you quote from a medical writer in one of the daily newspapers. I had not seen this particular article, but I am impressed, because it is the one and only time, that I am aware of, when anyone has emphasised in the press the mental aspect in the campaign for national fitness. "Individual courage" and "happiness before physique" are I think matters of great importance which must not be overlooked.

There are certainly many sides of the problem which we, as a profession, must stress to those who are preparing for new legislation in Parliament, and amongst the matters which need consideration this question of mental health is of great importance. We must not allow our legislators to slip back into the old fallacy that a healthy body will produce a healthy mind. The existence of anxiety, or indeed any other psychoneurotic tendency in an individual, will in most cases effectively prevent him from getting benefit from physical training. Moreover the psychoneuroses are, as we now know, responsible for much invalidism and general inefficiency amongst the whole population. It should be, therefore, the responsibility of the profession to urge that, instead of a campaign directed to the betterment of the "national physique," which is the phrase which has been used chiefly in the lay press, efforts should be made for "national fitness," the concept which you have adopted so appropriately. If this is to become an A1 nation then certainly we must have a policy of social betterment, of sounder feeding; and of physical recreation, but we must also think hard and spend wisely to improve the mental health—the balance and "adjustment" of the individuals who compose the nation.

"Keep fit" classes and playing-fields are splendid. It is less easy, perhaps, for our legislators to realise that child guidance work, psychotherapeutic clinics, and education for mental health are fully as important.

I am, Sir, yours faithfully,

London, W., Nov. 23rd. J. R. REES.

INTRACRANIAL INJURIES OF THE NEW-BORN

To the Editor of THE LANCET

SIR,—If it is still true, as you say in your last issue, that "the general opinion of intracranial injuries of the new-born is that they are . . . better fatal," it seems clear that those who have worked at this subject and have learnt the incorrectness of the old view above recorded must increase their efforts to convince others. The paper by R. H. Nattrass in the *Medical Journal of Australia* will help by emphasising the frequency of intracranial birth injury, especially in its slighter forms, and by restating some important points in treatment.

The neonatal deaths in England and Wales amount to approximately 19,000 each year, and it is obvious that we cannot hope for any reduction in the number ascribable to birth injury so long as general opinion of this lesion remains morbidly and unjustifiably pessimistic. This pessimism has presumably arisen: firstly, because it is common knowledge that intracranial birth injury may be fatal, and that severe but non-fatal trauma is occasionally followed by very serious physical or mental disability; secondly, because examples of (*a*) spastic paralysis due to congenital maldevelopment, (*b*) various types of amentia, and (*c*) other less common non-traumatic disorders are sometimes incorrectly ascribed to the trauma of birth; and thirdly, because there is a very human practice of consoling the mother for the death of her infant during or shortly after birth by assuring her that if the child had lived he might or would have been crippled.

My experience during the thirteen years that I have been pædiatric physician to the Liverpool Maternity Hospital has encouraged me to take an increasingly optimistic view of this question, even when allowance is made for two factors which undoubtedly influence the problem—namely, that slighter cases are diagnosed more often, and that treatment is improving. There is no treatment in the whole range of medicine or surgery which does not suffer if it is carried out in an atmosphere of pessimism, and I trust that, in the interests of the new-born baby, general medical opinion may soon become enlightened regarding the prognosis of intracranial birth injuries.

I am, Sir, yours faithfully,

Liverpool, Nov. 23rd. NORMAN B. CAPON.

INJECTION TREATMENT OF HERNIA

To the Editor of THE LANCET

SIR,—I heartily endorse Mr. Maurice Lee's remarks in your issue of Nov. 14th. I have been using injection treatment for inguinal hernia during the past six years, and the more I see of its results, the more I am convinced that it has a great future. It is free from operative and anæsthetic risk and *in properly selected cases* the results are excellent. The solution I use is that evolved by the late Dr. Ignatz Mayer of Detroit, U.S.A., who carried out this treatment for over thirty-five years with great success. It is prepared for me by Mr. J. G. Parsons, chemist, of 156, Church-road, Hove. My technique has been frequently, and fully, described elsewhere.[1]

In any commercial undertaking the customer who does not see what he wants walks out and goes to the opposition shop. Patients confronted with operation always ask: "Is there any alternative non-operative treatment?" If we tell them "No," some will seek advice in the opposition camp of the unqualified practitioners. These in the past have not been slow to exploit and, through lack of proper training, bring into disrepute sound but novel methods of treatment. If a patient has a hernia and asks: "Is there an alternative non-operative treatment?" the true answer is: "Yes, there is; *injection in suitable cases*." If the medical attendant is unacquainted with the treatment, that is no valid reason for condemning it. His patient who is subsequently cured by injections only thinks him a fool or worse. Nearly three hundred years ago William Penn wrote: "Neither despise nor oppose what thou dost not understand."

I would particularly draw attention to the statement on p. 1107 of your issue of Nov. 7th that "inquiries at selected hospitals have shown that though most of them do not employ injection, *it is regarded as effective and safe in those that do*." Is the opinion of those who have not tried it worth the breath with which it is uttered? Experto credite.

I am, Sir, yours faithfully,

ST. GEORGE B. DELISLE GRAY.

Queen Anne-street, W., Nov. 21st.

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[1] Brit. Med. Jour., 1932, ii., 12; Med. Press and Circ., 1934, ii., 286; Maingot's Post-Graduate Surgery, London, 1936, vol. ii., p. 3245.

ŒSTRIN IN TOXIC GOITRE

To the Editor of THE LANCET

SIR,—In your issue of Nov. 21st Dr. Foss stresses the necessity for massive doses of œstrin to obtain results. In particular he mentions the excessive doses he has used for the affection of the skin known as kraurosis vulvæ, "much larger doses than normally used in human therapy."

It would appear from experimental work on animals that the injection of crystallised folliculin and its salts stimulates the development of cancer, and that carcinoma of the uterine cervix, mammary cancer, and cancer of the prostate gland have all been produced in this way in animals. Can the risk of stimulating a cancerous neoplasm be entirely dismissed when such injections are given to the human subject, more especially if the subject is predisposed? Dermatologists have seen in the past the disastrous results of a variety of skin remedies; to mention only two, thallium acetate in the treatment of tinea capitis, X rays in the treatment of lupus vulgaris. In these the risks were only recognised after the event. In the case of œstrin there seems to be definite experimental proof in advance.

These preparations are being recommended with increasing frequency, and it is a singular paradox that in the midst of a widespread campaign against cancer the use of remedies which are potentially carcinogenic is extending. Should not a woman be informed of the possible risk to which she is to be exposed and her consent to the treatment be obtained before injections are given, in the same manner in which the risks of any surgical procedure are explained and consent obtained for the operation?

I am, Sir, yours faithfully,

Welbeck-street, W., Nov. 21st. ELIZABETH HUNT.

*** Reference to the possible risk of inducing cancer with œstrin will be found in our report of last week's discussion at the section of obstetrics and gynæcology of the Royal Society of Medicine (p. 1269).—ED. L.

CHLOROFORM CAPSULES

To the Editor of THE LANCET

SIR,—May I add my testimony to that of Lieut.-Col. T. Hunter in his letter to THE LANCET of Oct. 24th on the safety of chloroform as an anæsthetic. In a long period of service in India I used chloroform almost entirely, without any fatality attributable to the anæsthetic. Other methods and other anæsthetics have their advantages, but chloroform has still its own advantages and uses, and it is a mistake to decry its usefulness and to exaggerate its dangers for all occasions, as it is the custom to do nowadays.

After my retirement I took up the suggestion for the use of chloroform by midwives as an analgesic in childbirth and, with the help and interest of the National Birthday Trust Fund, crushable capsules (brisettes) of 20 minims of chloroform were tried out in maternity hospitals, and in many hundreds of cases with success, with few if any bad results. I agree that in hospitals, as shown in your annotation in the same issue (p. 992), Dr. Minnitt's or some other gas-and-air apparatus may be preferred. But I am sure that those mothers who are attended by midwives in their own homes, as is the case with 60 per cent. of the births in this country, can be more easily given safe relief from the pains of childbirth by the use of these capsules. Instructions and rules for their use were drawn up, and were followed in the investigation and trial of the capsules in maternity hospitals. But the fear of chloroform—for the greater part, unnecessary fear—has militated against the training of pupil midwives in their use. Midwives are allowed to use bromides, chloral, and opium, and chloroform capsules are no more dangerous. With a short training in their use and attention to the simple rules they can, I am sure, be employed with safety and advantage.

I am, Sir, yours faithfully,

W. D. HAYWARD,

London, W., Nov. 19th. Lieut.-Col. I.M.S. (retd.).

UVEOPAROTITIS

To the Editor of THE LANCET

SIR,—The important conclusions drawn by the authors of the paper on uveoparotitis published in your last issue merit the consideration of ophthalmologists and physicians alike. Even if these conclusions appear to be vague, they will achieve good in emphasising the fallacy of regarding this disease as essentially tuberculous. Admittedly, some observers have presented a strong thesis in favour of this assumption, yet a different type of case is met with which one would be very hesitant to label tuberculous. In two examples that I have followed up since my report in THE LANCET of 1934, to which these authors refer, the patients have remained in good health, and these certainly appear to belong to the latter variety. I am, Sir, yours faithfully,

Windsor, Nov. 24th. C. B. V. TAIT.

To the Editor of THE LANCET

SIR,—The question of whether uveoparotitis is always of tuberculous origin has been raised again, and I think that various points arise in the paper by Lewis, Raines, and Stewart, published in THE LANCET last week, which require an answer. In recording a new case of uveoparotitis these authors suggest that this syndrome "may not be due to any one specific infection," but to my mind they produce no evidence to refute the contention of Thomson and myself that this condition is always of tuberculous origin.

They state that "tubercle bacilli have never been demonstrated in this condition"; but this is incorrect and they apparently realise this in the later statement that "guinea-pig inoculations have *nearly* always been negative." The demonstration of the tubercle bacillus is extremely difficult in this type of tuberculosis, but Cavara (Boll. d'oculist., Firenze, 1928) succeeded in producing tuberculosis in a guinea-pig inoculated with portions of an affected lacrymal gland; the inoculation experiments failed in three rabbits and two guinea-pigs before a positive result was obtained. In our second paper (THE LANCET, 1934, ii., 743) Thomson and I recorded a case previously under the care of Mr. Lawson of Leicester. This case was recorded a second time (Brit. Med. Jour., 1934, ii., 1041) by Tanner and McCurry, who by this time had succeeded in demonstrating tubercle bacilli in sections from an affected parotid gland.

Turning to the new case record, there can be no doubt that this is an example of uveoparotitis with the unusual development of a scotoma, this finding only once being noted before (Souter, W. C.: Trans. Ophth. Soc. U.K., 1929, xlix., 113). The Mantoux test was strongly positive but we are not told whether or not there was any *focal* reaction, the presence of which would be of paramount importance. The blood sedimentation-rate is not recorded and no mention is made of the heart, though it appears to be enlarged in the radiograms. We have, therefore, the case of a man whose father died of pulmonary tuberculosis, who had an attack of slight general ill health in 1926, a lung illness of somewhat doubtful origin in 1934, an attack of uveoparotitis with pyrexia in 1935, and a strongly positive tuberculin reaction in 1936. Yet although the authors advance no alternative theory based on facts, they are unable to agree that tuberculosis forms the basis of the uveoparotitis in this case.

Their statement that "in previously reported cases a period of malaise has been described before the onset of frank uveoparotitis" does not contain the whole truth. In the 47 cases reviewed by Thomson and myself prodromal symptoms had occurred in 20 only. But I think one of the most important points raised in their paper is the statement that "the presence of a round-celled infiltration, even together with giant cells, is not always necessarily a proof of a tuberculous infection"; this statement, of course, must be admitted, but I think it is of the greatest significance that all the biopsies performed either on the iris, parotid, or lacrymal gland in this syndrome have shown identical microscopic appearances, and the pathologist concerned has unhesitatingly labelled the section tuberculous. Further, in the new cases recorded by Thomson and myself, as well as in Souter's case and others subsequently recorded from Reading and Leicester, the sections have been examined by Prof. M. J. Stewart; there has never been any question about the identity of the condition, and while admitting that round cells and giant cells do not necessarily mean tuberculosis I should like to know if there is any proof that any other condition can produce the characteristic picture which has occurred in all these sections.

To say that "even if miliary tuberculosis supervened it might be argued that the uveoparotitis itself was not necessarily tuberculous," is to my mind no argument at all. Here we have a syndrome in which all affected biopsy material shows the histological appearance of tuberculosis and in which four persons have died; one of these died of pernicious anæmia, and the pathologist concerned did not consider this to be associated with the uveoparotitis, which had healed; the three remaining cases all died of miliary tuberculosis, and showed the characteristic microscopical changes in the affected parotid glands. I maintain that there is nothing to suggest the presence of "another allergen" operating in these three cases.

Finally I suggest that the latest case to be recorded, far from throwing doubt on the universal tuberculous ætiology of this syndrome, rather lends support to this theory.

I am, Sir, yours faithfully,

Leeds, Nov. 23rd. HUGH G. GARLAND.

ÆTIOLOGY OF ACUTE RHEUMATISM

To the Editor of THE LANCET

SIR,—Dr. Poynton's request for opinions on the current nomenclature of streptococci will, I hope, lead to some authoritative pronouncement on the subject.

Since I took an active part in the work recorded in Coburn's paper in your issue of Oct. 31st I may be able to contribute a little information, and this can best be accomplished by referring to a specific case quoted by him. The history reported on p. 1029 is that of a boy who contracted follicular tonsillitis on Feb. 17th, 1935. Clinically this was a straightforward streptococcal sore-throat. The predominant organism, also present in other members of the family, was a hæmolytic streptococcus belonging to Group A (Lancefield) Type 13 (Griffith). In common terms it was *Streptococcus pyogenes*. This particular type is a common epidemic strain—hence it may be classified *S. epidemicus*. It can produce scarlet fever, and is entitled to be named *S. scarlatinæ*. Otitis media and puerperal sepsis are frequently due to it, and I have seen Type 13 pyæmia, septicæmia, and pneumonia. Thus to *S. pyogenes*, vel *epidemicus*, vel *scarlatinæ*, vel *rheumaticus* we can add a number of qualifying adjectives. We add nothing to our knowledge! By retaining a term which is in common use we shall, in time, realise that the ordinary *Streptococcus pyogenes* is a villain playing many parts. One of his minor rôles is in the pathogenesis of acute rheumatism. What part he plays in this act, and how, is as yet unknown; it is certainly not by the mechanism which justifies the qualification "pyogenes," and the qualification "rheumaticus" is also doubtfully deserved.

We may find some practical value in qualifying the classification of hæmolytic streptococcus by the addition of a serological type number. Although we do not yet know the significance of the fact that this boy's organism was Group A, Type 13, we have a reasonable chance of recognising and identifying a similar organism obtained from another source.

I am, Sir, yours faithfully,

W. H. BRADLEY.

Department of Medicine, University of
Cambridge, Nov. 23rd.

THE MEDICAL REGISTER

To the Editor of THE LANCET

SIR,—I am directed by the President of the Council to say that he would be glad if you could publish this intimation that any orders for the office edition of the Medical Register, 1937, published by the Council at the special price of 10s. a copy, post free, must be received, with a remittance, at the office of the Council not later than Dec. 31st, 1936.

The office edition differs from the ordinary edition of the Register to the extent that it does not contain reprints of the Medical and Dentists Acts and other preliminary matter, and is printed on more inexpensive paper and bound in boards. It includes, however, the same entries relating to registered medical practitioners as are included in the ordinary edition, and is therefore equally serviceable to public authorities and others who find it necessary to ascertain whether particular persons are registered medical practitioners or not.

I am to take the opportunity of stating that the Council also prepare monthly lists of names added to, and removed from, the Register, and that particulars of the terms and conditions upon which copies of these lists may be made available can be obtained on application to the office of the Council.

I am, Sir, yours faithfully,

MICHAEL HESELTINE,
Registrar, General Medical Council.
44, Hallam-street, Portland-place,
London, W.1, Nov. 19th.

MR. Hugh Lett will deliver the Bradshaw lecture to the Royal College of Surgeons of England on Thursday, Dec. 3rd, when he will speak on the early diagnosis and the treatment of renal tuberculosis. A week later on Dec. 10th Dr. George W. Corner, professor of anatomy in the University of Rochester, will address the College on Salernitan surgery in the twelfth century when he gives the Thomas Vicary lecture. Both lectures will take place at the College at 5 P.M.

OBITUARY

WALTER HOLLAND OGILVIE, K.B.E., C.B., C.M.G.

LATE DIRECTOR OF MEDICAL SERVICES, INDIA

The death occurred at the age of 67 in Edinburgh on Nov. 20th of Major-General Sir Walter Ogilvie, a distinguished member of the I.M.S.

Walter Holland Ogilvie, born in Alexandria, was the son of the late Dr. J. F. Ogilvie, a prominent officer in the Egyptian medical service. He was educated at Bedford Grammar School and Edinburgh University, where he graduated as M.B., C.M. in 1891, obtaining later the degree of D.Sc. He entered the Indian Medical Service and all his multifarious duties were in connexion with that service. He remained in military employ till June, 1912, when he was appointed medical and sanitary adviser at Delhi. He served for a long period with the 40th Pathans, but was on several occasions ordered from regimental duty to civil employment. He was on famine duty in the Central Provinces in 1897, and in 1900 was present at the relief of Peking. In 1912, when he was appointed medical and sanitary officer at Delhi, he was also civil surgeon and superintendent of the district jail. He remained in Delhi for four years and was then appointed health officer at Simla, but in 1916 in response to repeated applications he was able to see military service during the war. He joined the 7th (Indian) Division and was present at the capture of Baghdad; and later, being transferred to Egypt, he was with Lord Allenby in the final operations against the Turks. In 1917 he received the C.M.G. and in 1923 was appointed C.B. (Mil.).

SIR WALTER OGILVIE

[*Photograph by Elliott & Fry*

At the conclusion of hostilities Ogilvie returned to India and in 1927 was appointed Director of Medical Services. In this post he showed himself especially anxious for certain reforms within the organisation of the I.M.S., for which however the political times were found to be inopportune. In 1928 Ogilvie was made a K.B.E., and in 1929 he retired from the service for which he had worked with such distinction under the age regulations.

WILLIAM LEONARD BRADDON, M.B. Lond., F.R.C.S. Eng.

The death of Dr. W. L. Braddon, which occurred at the end of September at Seremban in the Federated Malay States, brought to a close an interesting career. Born in 1861, the son of a doctor who practised at Upton-on-Severn, his early education was received at Owens College, Manchester (Victoria University), while he completed his medical studies at Guy's Hospital. He qualified as M.R.C.S. in 1884 and took the diploma of F.R.C.S. Eng. in the following year, while in 1887 he graduated in the University of London as M.B., B.S. He was a distinguished student throughout his career, gaining a scholarship at the hospital and a gold medal in forensic medicine at the university, after which he entered into partnership with his father at Upton-on-Severn.

But the roving spirit which he had manifested through his student days prevailed, and he made several voyages as medical officer in connexion with various shipping lines, and eventually settled down as district surgeon in Malaya. It was then that he began to take a practical interest in tropical diseases, the results of which gained him distinction; his researches into the ætiology of beri-beri were of a valuable nature and were recognised as such by the award to him of the Stewart research prize of the British Medical Association in 1912. Dr. Braddon added to his medical duties investigations into the production of rubber, became a successful planter, and was closely interested in the problems which its production presented. When the war broke out he joined the R.A.M.C. with the rank of major, and his long and practical acquaintance with malaria enabled him to render valuable service in Salonika.

Dr. Braddon was widely known by all classes of society in the F.M.S. He was president of a large estate owners' association, had been a coroner and an immigration officer, and a popular sportsman, and one is not surprised to learn that in Seremban a street has been named after him. He married in 1897 Miss Marion Philpott, by whom he had three daughters, two of whom are married and live in Malaya.

HENRY GORDON GREAVES, M.B. Camb.

To the grief of a large circle of friends and patients Dr. H. G. Greaves, anæsthetist to the Cardiff Royal Infirmary, was the victim of a fatal accident on Nov. 18th, being knocked down by a motor-car. He was moved to the infirmary and died almost immediately afterwards.

Gordon Greaves was a Derbyshire man, his father being a bank manager in Derby. He went to Cambridge and graduated as M.B., B.Ch. in 1911, having received his medical education at St. Bartholomew's Hospital where he was, for a time, resident anæsthetist. He then took a post as resident medical officer to the Royal Boscombe and West Hants Hospital at Bournemouth, and later commenced practice in Limpsfield. There he did excellent work as a general practitioner, and we learn from Dr. G. D. Laing, who later became his partner, what a good and straight colleague he was. At the outbreak of the war, in August, 1914, Greaves went to France and saw much heavy fighting and was in the Mons retreat, but when he came home in 1915 he was unfit for further service abroad. But he had now to take on the work of two, for Dr. Laing, in his turn, went to the front. With the exception of some six months Greaves bore the burden of the practice until the end of the war, but he was, by that time, obviously not strong enough to meet the strenuous physical claims of a general practitioner in a country district, and he retired to Cardiff to become a specialist in anæsthesia, a subject which had attracted him from his early professional days. His leaving Limpsfield was the subject of great regret, for not only was he an efficient and extremely kind doctor but he had entered keenly into the social life of the place. He was a good actor and helped to found a dramatic club in Oxted which is still running successfully. He proved of great use in getting the local cottage hospital started, he played cricket for the village, golfed, and was a good billiard player. The high regard of his friends and patients was manifested on his departure by the presentation to him of a motor-car.

When Greaves settled in Cardiff in 1923 he was the only specialist in anæsthetics in the city. He was soon appointed lecturer in anæsthetics to the Welsh National School of Medicine, and anæsthetist to the Cardiff Royal Infirmary, working in the surgical unit of the school; he became also anæsthetist to the Prince of Wales Orthopædic Hospital and to the Llandough and City Lodge Hospitals of the Cardiff Corporation. His services were also much in demand for private cases for he was an excellent anæsthetist, well versed in modern methods, while as a teacher all his instruction was thorough and well informed. At the time of his death he was a member of the council of the section of anæsthetics of the Royal Society of Medicine. At Cardiff also his outside interests were large and many of them were centred on various forms of sport. He was an active supporter of the Glamorgan County Cricket Club and the Welsh Amateur Boxing Association. He had, indeed, a decided and vigorous personality and his interest in patients was not confined to that of an anæsthetist.

Dr. Greaves leaves a widow but no children.

FREDERICK WILLIAM OLDERSHAW, M.R.C.S. Eng., D.P.H.

By the death of Dr. F. W. Oldershaw, medical officer of health for Weymouth, the town and neighbourhood have lost an important official. He received his medical education at the London Hospital and was Drapers' open science scholar at the University of London. He took the English double diplomas in 1924 and, having secured the D.P.H. in 1928, acted as assistant school medical officer to the Nottinghamshire county council. He was then appointed deputy M.O.H. for the borough of Swindon, afterwards becoming M.O.H. and school medical officer at Colne, a post he had held for two years, when in 1931 he became medical officer of health for Weymouth. During his occupation of this last post he proved himself an extremely hard-working and forward-looking officer; in fact, in the opinion of his fellow citizens, his early death could be attributed to the self-sacrificing way in which he interpreted his duties. For the past five years he was a tireless public health reformer, waging a steady campaign against overcrowding and bad housing, and tackled insanitation generally whilst he voiced his criticisms of those who appeared apathetic in these matters in an outspoken manner. During his short period of office the sanitary conditions of the town, which came to include additional areas, called for strenuous work. The health institution at Westham, which was largely the creation of his predecessor in office, developed under him, and in particular he was instrumental in establishing orthopædic and chiropodic clinics there, while during his term the re-drainage of the borough now in progress was started.

Dr. Oldershaw's health failed in the summer, and about two months ago he went away for a complete rest, going to Lincoln where his parents lived. He had there an attack of rheumatic fever which proved fatal. He leaves a widow and three children, with whom widespread sympathy is felt, for he was only 40 years of age.

THOMAS PERCIVAL BERRY, M.D. Lond.

The recent death of Dr. T. P. Berry occurred at Zurich shortly after his retirement from his position as chief medical officer to the Great Western Railway at Swindon. Dr. Berry received his medical education at Guy's Hospital, and graduated in 1898 as M.B. Lond., proceeding later to the M.D. degree. At Guy's he filled the post of assistant house surgeon, and later held a resident obstetric office, at the termination of which post he was appointed medical officer at St. Saviour's Infirmary, East Dulwich. He later went into practice at Swindon and, in 1921, was appointed chief medical officer to the Great Western Railway at Swindon. He was associated with the Swindon G.W.R. Medical Fund Society for thirty-two years, and was also physician to the Swindon Victoria Hospital and the Swindon Maternity Home. In his private practice he was much esteemed by his patients, and in the administration of the medical fund he was notable for the generous way in which he interpreted the needs of the cases that came before him. This kindness of heart he was wont to display at Christmas by making a round of visits, sometimes in the traditional costume of Santa Claus, to sick children and cripples who had come under his care in the course of his professional duties, his car being loaded with suitable gifts.

When he retired last May, for reasons of health, he went on a continental tour, but despite specialist treatment recovery did not ensue, and he died at Zurich, the home of his wife, at the too early age of 61.

PUBLIC HEALTH

Middlesex Sewage Scheme

The inauguration by the Minister of Health of the new sewage treatment works for West Middlesex at Mogden, near the Twickenham football ground, will have far-reaching results. It will eliminate the nuisance or unpleasantness in the near neighbourhood of some of the smaller works which it replaces and it will improve the condition of the non-tidal reaches of the Thames for some distance above the intakes of the Metropolitan Water Board as well as the tidal part of the river bordered by the county of Middlesex. Instead of the sewage of a million people being treated at more than twenty small works of varying antiquity and efficiency it is brought to one entirely new works, designed in the light of modern knowledge by Mr. J. D. Watson, whose long experience at the Birmingham, Tame, and Rea works places him in the first rank of sewage experts.

The effluent discharged from the Mogden works into the Thames at Isleworth Eyot will need to be very good, since the self-purifying power of the river, which to some extent nullified the pollution caused by one discharge before another came in a few miles down stream, does not now come into play. The Middlesex authorities have such confidence in their power to produce a good effluent that they have consented to very drastic requirements on the part of the Port of London Authority, which is in charge of the tidal river. The combined scheme of sedimentation and biochemical treatment in use at Mogden should be sufficient to justify these hopes, at least for some years to come; the testing time will come later, for the 160 square miles served by the scheme is a district of rapidly growing population. The erection of the works at Mogden and the sludge digestion works a short distance off where combustible gas sufficient to provide power for the various purposes of the works is generated by fermentation of sludge is only one part of the scheme. Middlesex is not a hilly county and the area served includes the Hounslow Heath flat, but the linking of the many scattered districts has involved a great system of main sewers the construction of which has taken some years and has required much scheming, negotiation, and engineering work, and incidentally has caused much inconvenience to householders which is now happily at an end.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 14TH, 1936

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0; scarlet fever, 2250; diphtheria, 1373; enteric fever, 17; pneumonia (primary or influenzal), 640; puerperal fever, 37; puerperal pyrexia, 101; cerebrospinal fever, 8; acute poliomyelitis, 8; encephalitis lethargica, 4; dysentery, 19; ophthalmia neonatorum, 61. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Nov. 20th was 3112, which included: Scarlet fever, 1150; diphtheria, 978; measles, 21; whooping-cough, 326; puerperal fever, 13 mothers (plus 8 babies); encephalitis lethargica, 288; poliomyelitis, 2. At St. Margaret's Hospital there were 12 babies (plus 4 mothers) with ophthalmia neonatorum.

Deaths.—In 122 great towns, including London, there was no death from small-pox, 1 (0) from enteric fever, 4 (0) from measles, 7 (1) from scarlet fever, 8 (1) from whooping-cough, 39 (5) from diphtheria, 44 (10) from diarrhœa and enteritis under two years, and 32 (7) from influenza. The figures in parentheses are those for London itself.

Newcastle-under-Lyme reported the only fatal case of enteric fever. Stoke-on-Trent had 2 deaths from measles; Sunderland had 2 deaths each from scarlet fever and whooping-cough. Fatal cases of diphtheria were reported from 24 great towns; Liverpool 4, Hull and Manchester each 3.

The number of stillbirths notified during the week was 280 (corresponding to a rate of 45 per 1000 total births), including 51 in London.

PARLIAMENTARY INTELLIGENCE

DIVORCE LAW REFORM

In the House of Commons on Nov. 20th Mr. De La Bere moved the second reading of the Marriage Bill.—Mr. A. P. Herbert, in seconding the motion, said he did not espouse this cause because he was a lifelong Bohemian who was anxious for sexual licence or as a hard-luck story, but because he believed that it would bring new strength to the institution of the family and to the relations between Church and State. At the moment the law of divorce was mocked not only in words but in deeds. There was collusion and perjury, and the wrong people got what they wanted and the right people could not. They were rapidly reaching a situation in which no stigma whatever would attach to a public confession of adultery.

Under Clause 1 of the Bill there would be no dissolution of the marriage tie within five years of the date of marriage.

Clause 2 dealt with the grounds upon which divorce should be granted. The first was adultery—the only ground which existed at present in this country—desertion, cruelty and habitual drunkenness (plus a period of three years separation on that ground), and incurable insanity. The general intention was that where an unfortunate person became incurably insane and had been continuously insane—however that might be defined—for a period of five years the spouse of that person should be able to form a new home. In 1930, the last year for which figures were available, there were 40,000 married lunatics in this country, and 20,000 of these had been certified for more than five years. The evidence before the Royal Commission showed that of the number of lunatics who recovered 88 per cent. recovered in two years; 9 per cent. in three to five years; 1·6 per cent. between five and ten years; and a negligible 0·5 per cent. between 11 and 20 years. Those he would emphasise were the proportions of the number who recovered and not of the entire number of lunatics. The last ground for divorce mentioned was that the respondent was undergoing imprisonment under a commuted death penalty. At present there were 74 people, not necessarily married, serving such sentences.

Clause 3 dealt with technical safeguards against collusion and connivance.

Clause 5, which dealt with the new grounds for nullity, followed the recommendations of the Royal Commission.

Clause 6 was intended to clear up the tangle created when a man disappeared for seven years and then turned up again.

Clause 7 abolished the decree nisi. When a wife in poor circumstances had to complain of the cruelty, desertion, or drunkenness of her husband she went to the police-court. It might be that some medical question arose which could be dealt with by medical advice, and in such cases a doctor was called in. That procedure went on when the application was for separation, but if the wife wanted a divorce the case passed out of the kindly, human domestic atmosphere of the police-courts to the Assizes or the High Court. Here it was a question of legal rights and not one of adjustment and conciliation.

The proposal in Clauses 9 and 10 was to give the first hearing of divorce cases to magistrates selected by the Lord Chancellor.

Sir Donald Somervell, Attorney-General, said that it was quite clear from the speeches that day that the House desired this Bill to get a second reading. On the face of it there were a number of considerations in it which would require the most careful examination. There were a certain number of them to which he saw objections. Members must vote for or against the second reading according to their convictions. He did not think that he could be called upon at that stage to express either approval or disapproval of the principles of the measure.

The second reading of the Bill was carried by 78 votes to 12.

NOTES ON CURRENT TOPICS

Infanticide Bill

In the House of Commons on Nov. 24th Mr. Jagger asked leave to introduce the Infanticide Bill, the object of which is to provide that a woman who wilfully causes the death of her child being under the age of eight years may, *in certain conditions*, be convicted of infanticide. He said that the Bill consisted of one clause. It merely sought to legalise what had been the consistent practice for nearly 90 years, and to remove the legal anomaly and futile cruelty involved in sentencing women to death when it was perfectly well known to everybody, except the unfortunate prisoner, that there was no intention of the sentence being carried out. There had been six cases of that character in the last 12 months, and one judge had told the prisoner that she need take no notice of the dread sentence he was about to pass upon her. In this class of case, Mr. Jagger contended, there was a very real need of doing something more than was done by the Infanticide Act of 1922. Of the eleven cases which had occurred in recent years, he would instance two. One was that of a girl of 18, who drowned her illegitimate child of 18 months. The child's father, a military man, failed to pay alimony as ordered by the court. Eventually the girl was driven to desperation. According to the medical evidence, the girl had only the mentality of a child of 11. After being sentenced, she was in the condemned cell for 13 days and was then reprieved. Another, and more recent case, was that of a domestic servant of 26, who had an illegitimate child. The father failed to pay alimony and the girl tried to earn money to pay the foster-parents. She got behind with the payments and the foster-parents ordered her to remove the child. The woman jumped into the river with the child in her arms. The child was drowned, but the mother was saved, and there followed what was almost the farce of a judicial trial for murder. A verdict of "guilty" was brought in, she was sentenced to death and reprieved within 24 hours. The promoters of the Bill desired that the Infanticide Act of 1922 should be repealed, and should be replaced by the present Bill, which would so amend the original Act as to make it possible for juries in situations of the kind to which he had referred, even though the period exceeded the present limit which in practice was interpreted by the judges as being about 21 days, to extend it so as to cover mothers who committed acts of the kind he had referred to under extreme stress arising from other causes than the immediate effect of childbirth.

Leave was given to introduce the Bill which was read a first time.

QUESTION TIME

WEDNESDAY, NOV. 18TH

Enlistment for the Royal Air Force

Mr. DAY asked the Under-Secretary of State for Air the number of applications received for enlistment into the Royal Air Force for the year ended March 31st, 1936; the number that were medically examined and found physically fit; the number attested during the same period; and the number rejected for any cause.—Sir P. SASSOON replied: The number of definite applications for enlistment during the year ended March 31st, 1936, was 32,245. During the same period 18,889 were medically examined and found physically fit and 14,005 were attested. I regret that details are not available as to the numbers rejected for different reasons.

THURSDAY, NOV. 19TH

Unemployment Regulations and the Means Test

Mr. KENNEDY asked the Minister of Labour if he had considered the case stated on Thursday last against the changes proposed in the new unemployment regulations and the operation of the means test by the deputation representing the national hunger marchers; and if any action was proposed by the Government on the lines of the changes suggested by the deputation.—Lt.-Col. MUIRHEAD, Parliamentary Secretary to the Ministry of Labour, replied: When my right hon. friend met a deputation of Members of Parliament accompanied by marchers on Thursday last, he found that there was considerable misunderstanding as to the way in which the new unemployment assistance regulations would work, and he offered to have inquiries made into the individual cases that had been referred to if details were sent to him through the Members. At the same time, he made it clear that the Government had no intention of proposing any change in the regulations.

Canned Goods and Public Health

Captain CUNNINGHAM-REID asked the Minister of Health if he would consider the desirability of promoting legislation both to provide for the marketing of canned goods with an indication of the date and place of preparation, and to prohibit the sale of such canned goods beyond safe periods.—Mr. HUDSON, Parliamentary Secretary to the Ministry of Health, replied: My right hon. friend has considered this question but, having regard to the administrative difficulties involved, he is not satisfied that the advantage to the public health would be sufficient to justify the adoption of the measures suggested by my hon. friend.

Milk Pasteurising Plants

Sir ARNOLD WILSON asked the Minister of Health whether his attention had been called to the statement in the report of the medical officer of health of Bootle that, of 13 samples of pasteurised milk taken from two licensed plants of modern design erected in the previous year, only eight conformed to official standards, and of 21 samples of school milk only 15 came up to standard; and whether, in view of the proved inefficiency of many modern pasteurising plants, as shown by the official report of Sir W. Dalrymple-Champneys, and of similar reports from other county boroughs, he would initiate fresh scientific inquiries into this matter.—Mr. HUDSON replied: My right hon. friend is aware of the statement in the annual report of the medical officer of health for Bootle. My department in May, 1935, circulated to local authorities a detailed memorandum on the requirements for ensuring the efficient working of pasteurisation plants, and on April 24th last, in a circular letter, my right hon. friend again drew their attention to the matter. He then suggested that they should survey all licensed plants in their areas and cause frequent inspections to be adopted in future. My right hon. friend does not consider that any fresh scientific inquiry is at present required on this subject, but rather continuous activity on the part of the licensing authorities in supervising the operation of pasteurisation plants.

Brigadier General CLIFTON BROWN: Has the hon. gentleman seen the report of the Reading Agricultural College that a disturbingly high proportion of samples taken are contaminated?—Mr. HUDSON: That appears to emphasise the need for local authorities to follow the advice of the Ministry and to exercise strict supervision over the pasteurising plants in their areas.

Mr. A. V. ALEXANDER: Is the Parliamentary Secretary aware that owing to the use of unpasteurised milk at Bournemouth there were 500 cases of typhoid and 40 deaths?—No further answer was given.

MONDAY, NOV. 23RD

Black-listed Elementary Schools

Mr. LECKIE asked the President of the Board of Education the number of elementary schools now on Black List A; whether any additions had been made to that list during the past two years; and when he expected that they would all have been dealt with.—Mr. GEOFFREY SHAKESPEARE, Parliamentary Secretary to the Board of Education, replied: The number of schools now in Category A of the Board's list of public elementary schools with defective premises is 166. No additions have been made to the list during the last two years. As regards the last part of the question the attention of local education authorities has recently been called to the need for action in this matter, and my right hon. friend is anxious to see all the outstanding cases dealt with as soon as possible.

TUESDAY, NOV. 24TH

Illegal Operations and Maternal Mortality

Mr. BOOTHBY asked the Minister of Health if any statistics existed to show whether the prevalence in this country of illegal operations for abortion by unqualified persons was a contributive factor to the high rate of maternal mortality; and whether, in view of the recommendations of the British Medical Association, following the report of its special committee, His Majesty's Government would consider setting up a Royal Commission to inquire into the operation and results of the present law relating to abortion, with a view to its reform.—Sir KINGSLEY WOOD replied: The answer to the first part of the question is in the negative. The suggestion made by my hon. friend in the second part of the question will receive my careful consideration when I have before me the report, now in course of preparation, of the special investigations recently made by officers of my department into maternal mortality in various parts of the country.

MEDICAL NEWS

University of Oxford

Mr. Victor Lack has been appointed clinical examiner in midwifery in place of Mr. A. C. Palmer who has resigned.

It is announced that Sir Farquhar Buzzard will stand as the official Conservative candidate for the University at the parliamentary by-election that will become necessary when Lord Hugh Cecil resigns his seat. Sir Farquhar, who is 64, has lately received permission to retain office as regius professor of medicine until after his seventieth birthday.

On Tuesday last Lord Nuffield stated that he has decided to increase his gift of £1,250,000 for post-graduate medical training and research at Oxford to £2,000,000.

University of London

The title of professor of pathology of mental disease in the university has been conferred on Dr. F. L. Golla and the title of professor of psychiatry in the university on Dr. Edward Mapother in respect of the posts held by them at the Maudsley Hospital.

Sir Ernest Graham-Little has for the fifteenth consecutive time been re-elected chairman of the council for external students of the university.

On Dec. 2nd, 4th, 7th, 9th, and 11th Dr. F. W. Twort, F.R.S., professor of bacteriology in the university, will lecture on the study of ultramicroscopic viruses. The lectures will all be given at 5 P.M., the first four at the London School of Hygiene, Keppel-street, W.C., and the fifth at the Brown Animal Sanatory Institution, 149, Wandsworth-road, S.W.8. Admission to the lectures is free without ticket.

Society of Apothecaries of London

At recent examinations the following candidates were successful:—

Surgery.—M. Barker, Univ. of Sheff; R. F. B. Bennett, Univ. of Oxford and St. George's Hosp.; J. A. G. Gulliford, Welsh National School of Medicine; L. W. La Chard, St. George's Hosp.; and H. L. W. Sixsmith, Welsh National School of Medicine.

Medicine.—F. Hamed, Royal Free and West London Hosps.; C. R. Hardman, Univ. of Manch.; C. J. S. Sergel, Univ. of Camb. and St. Mary's Hosp.; H. L. W. Sixsmith, Welsh National School of Medicine; and F. J. C. Smith, London Hosp.

Forensic Medicine.—F. Hamed, Royal Free and West London Hosps.; C. R. Hardman, Univ. of Manch.; C. J. S. Sergel, Univ. of Camb. and St. Mary's Hosp.; H. L. W. Sixsmith, Welsh National School of Medicine; and F. J. C. Smith, London Hosp.

Midwifery.—C. C. B. Guest, Univ. of Sheff; T. A. M. Johns, Univ. of Oxford and King's Coll. Hosp.; J. H. Lewis, Univ. of Oxford and Charing Cross Hosp.; and F. L. Skinner, Univ. of McGill.

The following candidates, having completed the final examination, are granted the diploma of the society entitling them to practise medicine, surgery, and midwifery: C. R. Hardman, T. A. M. Johns, J. H. Lewis, C. J. S. Sergel, and H. L. W. Sixsmith.

University of Aberdeen

Dr. Dugald Baird, first assistant to the Muirhead professor of obstetrics and gynæcology in the University of Glasgow, has been appointed regius professor of midwifery in the University of Aberdeen in succession to Prof. R. G. M'Kerron who has resigned.

Dr. Baird, who is 36 years of age, graduated in science at Glasgow in 1919 and qualified in 1922. The next two years he spent in gaining general experience, in the course of which he took the D.P.H., and in 1924 he was appointed resident gynæcological registrar to the Glasgow Royal Infirmary under Prof. Munro Kerr. Two years later he went to Strasbourg to [illegible] and on his return he [illegible] Royal Samaritan [illegible] in 1927 when h[illegible] post under Prof. James Hendry. In the same year he was appointed a British Medical Association research scholar, and from 1930 his investigations were also supported by grants from the Medical Research Council. He was made a foundation member of the British College of Obstetricians and Gynæcologists in 1932, and in the same year delivered the Bradshaw lecture of the Royal College of Physicians of London. This lecture, which was published in THE LANCET, described his observations on atony (and subsequent infection) of the upper urinary tract in pregnancy, which he related to endocrine dysfunction. In 1931 he obtained the degree of M.D. with honours and a Bellahouston gold medal, and in the following year he was elected F.C.O.G. Dr. Baird is consulting gynæcologist to the Glasgow Royal Cancer Hospital and visiting obstetric surgeon to the Glasgow Royal Maternity and Women's Hospital. A year ago his observations on the urinary tract were published in extenso in the *Journal of Obstetrics and Gynæcology of the British Empire*, and last February he contributed to our columns a suggestive address on maternal mortality in hospital.

Royal Sanitary Institute

A meeting of this institute will be held at 90, Buckingham Palace-road, London, S.W., on Tuesday, Dec. 8th, at 5.30 P.M., when Mr. H. H. George, assistant secretary of the Ministry of Health, will open a discussion on the abatement of overcrowding: the results of the first steps.

Pharmaceutical Society of Great Britain

Dr. J. G. Tait has been appointed resident secretary in Scotland to this society in succession to Mr. J. Rutherford Hill who has retired. Dr. Tait is the pharmacist representative on the consultative council on medical and allied services of the Department of Health for Scotland.

Glasgow University Club, London

The autumn dinner of this club will be held at the Café Royal, Regent-street, London, W., on Friday, Dec. 4th, at 7.30 P.M., with Prof. D. M. Blair in the chair. Any Glasgow University men who, though not members of the club, wish to attend are asked to write to the hon. secretaries, 62, Harley House, London, N.W.1.

Society of Medical Officers of Health

The annual dinner of this society was held on Nov. 20th at the Piccadilly Hotel, Dr. Ernest Ward presiding over a large and enthusiastic company. In proposing "The Society," Sir Kingsley Wood, surveying the gathering, suggested that a medical officer of health required the personal and social qualities of the accountant, the imagination of the advertising agent, the zeal of the missionary, the patience of Job, and the hide of the hippopotamus, "coupled," he added, "I suppose, with medical knowledge," to which his delighted hearers returned an ironical "No." The M.O.H., he went on, occupied the front-line position in the campaign for the reduction of disease and the promotion of healthy living. "I regard you," he said, "as captains of the health army." The best results were only to be achieved by coöperation and understanding between the central government and those engaged in health work at the periphery, and he mentioned gratefully the part played by the medical service in the national housing campaign which without its help would have been futile. He foreshadowed facilities for further dental treatment and for adequate equipment in physical education.—Dr. Ward, in reply, said he deeply felt the honour of being the first clinical officer to occupy the chair of the society, and if in the past he had been unduly critical he pleaded that the ardent reformer was apt to be distrustful of reforms initiated by others. He welcomed the initiative of the society in promoting post-graduate courses for M.O.H.'s, and in this undertaking they hoped for the advice and coöperation of the Ministry of Health. He concluded with thumb-nail sketches of some of the leaders of public health.—The toast of "The Guests" was proposed by Dr. F. T. H. Wood, who happily described his approach to the subject as cito tuto et jucunde. Whatever branch of medicine we practise, he said, we are one, and he compared the work of the surgeon with that of the M.O.H. The surgeon's work was individual, his results immediate, and his reward material. The M.O.H.'s work was communal, his results less easily demonstrated, and his reward a contented mind.—Sir Cuthbert Wallace said he was conscious that surgery had contributed less to public health than any other science, although the health service had many points of contact including, as it did, everything from teeth and tubercle to bathing-pools and backboards. But he pleaded that surgeons lived on the deficiences of the other branches: on accidents for which the Minister of Transport was responsible, on the failures of physicians, immunologists, and even of the preventive men.—Sir Comyns Berkeley, who also responded, spoke of friendly coöperation between the Central Midwives Board and the official health service, and of the forthcoming issue of rules for refresher courses.—Among the other guests were the master of the Society of Apothecaries, the president of the British Dental Association, the chairman of the General Nursing Council, the chief medical officer and the secretary of the Ministry of Health, the president of the British College of Obstetricians, and the chairman of the Metropolitan Boroughs Standing Joint Committee.

THE King has given permission to Major W. I. F. Powell, principal medical officer, Egyptian Army, to wear the decoration of Commander of the Order of the Nile conferred upon him by the King of Egypt in recognition of his valuable services.

Leeds Public Dispensary and Hospital

On Tuesday, Dec. 1st, at 8.30 P.M., Dr. J. Forestier of Aix-les-Bains will deliver a lecture at the arthritis clinic of this hospital on rheumatoid arthritis and its treatment with gold salts, a review of eight years' experience.

Diploma in Psychological Medicine

A course of lectures and practical instruction for the D.P.M. will be held at the Maudsley Hospital, Denmark-hill, London, S.E., from January to May. It is divided into two parts, and Part I. will begin on Jan. 4th. Further particulars may be had from Prof. F. Golla, honorary director of the medical school at the hospital.

British Serbian Units Branch

The annual dinner and dance of this branch of the British Legion will be held on Saturday, Dec. 5th, at the Lysbeth Hall, Soho-square, London, W., at 7.20 P.M. Dr. C. R. Cooke-Taylor will preside. The hon. secretary may be addressed at 24, Melcombe-court, Dorset-square, London, N.W.1. All who served Serbia and friends of Yugoslavia are welcome.

Scottish Lord Rectors

The students of Edinburgh University have elected Sir Herbert Grierson, emeritus professor of rhetoric and English at the University, to be their Lord Rector. Dr. Donald Pollock and Dr. Chalmers Watson were among the candidates. The students of Aberdeen University have elected Vice-Admiral Sir Edward Evans—"Evans of the *Broke*"—to be their new Lord Rector in succession to Mr. Walter Elliot.

British Institute of Radiology

On Dec. 2nd, at 3 P.M., Sir Farquhar Buzzard will open the tenth annual congress of this institute which will be held at the Central Hall, Westminster. On Dec. 3rd and 4th medical and physical and technical papers will be read and the official lectures will be given. Details of these will be found in our Medical Diary. The annual dinner will be held at Claridge's Hotel at 8 P.M. on Dec. 4th. An exhibition of apparatus organised by the British X ray industry will be held in connexion with the congress. The secretary of the institute may be addressed at 32, Welbeck-street, London, W.1.

Chadwick Trust

On Tuesday, Dec. 1st, Prof. S. D. Adshead will give the first of six Bossom lectures on improved methods and materials employed in building. He will speak on modern methods of building. On Dec. 17th Sir William Collins will take the chair at the second lecture of the series when Mr. Herbert Welch will speak on the construction of the modern house. Both lectures will be given at the Royal Institute of British Architects, 66, Portland-place, London, W. at 6 P.M. Further information about the series may be had from the secretary of the Chadwick Trust (204, Abbey-house, London, S.W.1), under whose auspices it is being held.

The Red Cross and Spain

At a statutory meeting of the council of the British Red Cross Society on Nov. 18th Sir Arthur Stanley, as chairman of the executive committee, reported on Red Cross action in Spain. The International Red Cross Committee, he said, had sent a delegate to visit both sides in the civil war, and had subsequently appealed to all national Red Cross societies to send assistance in personnel, material, and money. The British Red Cross immediately sent a donation of £500 to the International Committee, which established a number of centres in Spain, staffed with their own personnel, for the relief of soldiers and civilians of both sides. An appeal was made in this country for additional funds, as a result of which a further £500 had been sent to the International Committee as well as a supply of bandages. The total reached by the relief fund now stood at £1132 11*s.* 10*d.*

ON Tuesday night Lord Dawson of Penn was entertained at dinner at the House of Commons by his medical colleagues in both Houses and his ex-colleagues in the lower House, the occasion being to congratulate him on his viscounty.

Medicine in the Mission Field

An exhibition illustrating medical missionary work will be held, under the auspices of the West London Mission, at Kingsway Hall in the last week of January next. The secretary and treasurer is the Rev. W. Allan Harling, who, from Kingsway Hall, will be glad to give any further information.

National Ophthalmic Treatment Board

A new clinic has been opened in Torquay by this board in connexion with its national eye service. The ceremony was performed by Mr. A. W. Ormond, F.R.C.S., who explained that after the late war the Government had asked the British Medical Association to organise an ophthalmic benefit scheme run by medical men at a cost within the monetary reach of members of approved societies, and the present scheme was the result. The ordering of glasses and the treatment of ophthalmic patients should not, he held, be undertaken primarily by an optician. In his experience half of all ophthalmic patients had a medical cause for their troubles.

Appointments

COSIN, C. F., M.D., M.R.C.P. Lond., has been appointed Hon. Assistant Physician to Margaret-street Hospital for Diseases of the Chest, London.

DEVERELL, A. C., L.D.S., Hon. Dental Surgeon to the Royal Free Hospital, London.

KERR, A. L., M.B. Liverp., F.R.C.S. Eng., Hon. Surgeon to the Sutton and Cheam Hospital.

MCCOWAN, P. K., M.D. Edin. F.R.C.P. Lond., D.P.M., Physician Superintendent of the Crichton Royal Institution. Dumfries. (From March 1st, 1937.)

MOIR, A. R. M., M.B. Edin., D.P.H., Assistant Medical Officer for Stockport.

SHAPLAND, C. DEE, M.B., M.R.C.P. Lond., F.R.C.S. Eng., Pathologist and Curator to the Royal London Ophthalmic Hospital.

London County Council Hospital Staff.—The following appointments, promotions, and transfers are announced. A.M.O. (I.) and (II.)=Assistant Medical Officer, Grades I. and II. Temp.=Temporary D.M.O.=District Medical Officers.

GUNN, A. L., M.D. Wales, F.R.C.S. Edin., M.C.O.G., Part-time Obstetrician and Gynæcologist (Temp.), at Lewisham and St. Giles';

DODDS, R. L., M.Ch. Belf., F.R.C.S. Eng., M.C.O.G., Part-time Obstetrician and Gynæcologist (Temp.), Dulwich and St. James';

TOPHAM, E. J. E., M.B. Camb., D.M.R.E., Assistant Radiologist, Hammersmith;

CLARK, H. McD., M.B. Edin., A.M.O. (II.), Temp., St. Nicholas';

GRAHAM, K. I., M.B. Melb., A.M.O. (II.), Temp., Lewisham;

GRANT, ALAN, M.B. Aberd., A.M.O. (II.), St. Andrew's;

ROBERTS, J. C., M.B., A.M.O. (II.), St. Nicholas';

TULLIDGE, GLADYS M., M.B. Lond., D.T.M. and H., A.M.O. (II.), St. Benedict's;

ROSS, S. R., M.D. Edin., D.P.H., A.M.O. (II.), Queen Mary's, Carshalton;

ALLAN, D. Y., M.D. N.Z., A.M.O. (I.), St. Stephen's;

DAVIS, ELI, M.D. Manch., A.M.O. (I.), St. Stephen's;

JONES, D. E. A., B.Sc., Assistant Physicist, Hammersmith and Lambeth;

DON, T. A., M.B. Edin., D.P.H., A.M.O. (II.), King George V. Sanatorium;

DANSIE, E. R., M.R.C.S. Eng., House Physician, St. Giles';

POND, E. D., M.R.C.S. Eng., House Surgeon, St. Mary Abbots;

GAYER, LENA B., M.R.C.S. Eng., Clinical Assistant, Fulham;

MAYER, ELLEN, M.R.C.S. Eng., Clinical Assistant, St. Giles';

SKINNER, T. E., M.R.C.S. Eng., D.M.O. (Temp.), Peckham, Dulwich, and Sydenham;

ROWNTREE, ALYSOUN H., M.R.C.S. Eng., D.M.O. (Temp.), Finsbury;

GREEN, R. D., M.B. Lond., A.M.O. (I.), St. Pancras;

SIMMONS, J. H., M.D., M.R.C.P. Lond., Senior A.M.O. (I.), Mile End;

CUNNINGHAM, A. A., M.D. Dub., M.R.C.P. Lond., D.P.H., Senior A.M.O. (I.), North Western;

FAIRY, JAMES, M.B. Glasg., Senior A.M.O. (II.), Constance-road Institution;

KEY, L. A., B.A., M.R.C.S. Eng., Senior A.M.O. (II.), St. Luke's, Lowestoft;

CROWE, ELSIE V., M.B., F.R.C.S. Edin., Senior A.M.O. (II.), St. Alfege's;

CARDWELL, EUPHEMIA, L.R.C.P. Edin., A.M.O. (II.), Brook;

HEAF, F. R. G., M.D. Camb., Principal A.M.O. in connexion with the Scheme for the Treatment of Tuberculosis;

SWYER, ROBERT, M.R.C.S. Eng., D.P.H., Senior A.M.O. (I.), Brook.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, Dec. 1st.

Pathology. 8 P.M., for 8.30 P.M. H. H. Brown: Immunity after Different Diseases. R. J. V. Pulvertaft: Post-hysterectomy Tetanus. H. P. Bayon: The Virus of Leukæmic Diseases in the Domesticated Fowl. Cuthbert Dukes: Histological Grading of Rectal Cancer.

Orthopædics. 8.30 P.M. Mr. H. A. T. Fairbank: Internal Derangement of the Knee in Children and Adolescents. Mr. Ralph Brooke: Bone Shortening for Inequality of Length in the Lower Limbs. Miss M. Forrester-Brown: Arthrodesis in Children.

WEDNESDAY.

History of Medicine. 5 P.M. Prof. G. W. Corner: Anatomical Illustration and the Fine Arts.

Surgery. 8.30 P.M. Mr. Geoffrey L. Keynes: The Operative Treatment of Uncomplicated Inguinal Hernia. Mr. W. I. Cumberlidge, Mr. W. H. Ogilvie, and Mr. C. C. Holman will also speak.

FRIDAY.

Otology. 10.30 A.M. (Cases at 9.30 A.M.) Dr. Paul Frenckner (Stockholm): Sinography, a Method of Radiography in the Diagnosis of Sinus Thrombosis. Mr. C. S. Hallpike: Some Recent Work on the Electrical Response of the Cochlea and Auditory Tracts.

Laryngology. 5 P.M. Dr. Frenckner: Bronchospirometry and its Clinical Application, with a Short Account of Bronchial Catheterisation. Dr. A. Soulas (Paris): Bronchoscopo-therapy in Broncho-pulmonary Suppuration; its Mechanism and Results. Prof. S. Belinoff (Sofia): Œsophagoscopy without Anæsthesia

Anæsthetics. 8.30 P.M. Dr. George Edwards: The Ideal Structure of a Modern Operating Theatre from the Anæsthetist's Point of View.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

FRIDAY, Dec. 4th.—7.30 P.M. (De Vere Hotel, S.W.), Dr. G. Konstam, Mr. H. L. Attwater, and Mr. A. E. Roche: Non-venereal Infections of the Urinary Tract.

BRITISH INSTITUTE OF RADIOLOGY.

WEDNESDAY, Dec. 2nd.—3 P.M. (Central Hall, Westminster), Sir Farquhar Buzzard: Opening Address.

THURSDAY.—10.30 A.M., Dr. J. F. Brailsford, Dr. R. E. Roberts, and Dr. L. M. Worth: Symposium on Bone Tumours. 2.30 P.M., Symposium of the Measurements of Ionisation Currents. 5 P.M., Dr. A. C. Christie: Diagnosis and Treatment of Primary Cancer of the Lung. (Nineteenth Silvanus Thompson lecture.)

FRIDAY.—10.30 A.M., Sir Thomas Dunhill, Dr. R. Boulton Myles, and Dr. S. C. Shanks: Symposium on Anatomical Variations of the Alimentary Tract. 3 P.M., Mr. J. D. Cockcroft: High Velocity Positive Ions. (Seventeenth Mackenzie Davidson lecture.)

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS, Lincoln's Inn Fields, W.C.

THURSDAY, Dec. 3rd.—5 P.M., Mr. Hugh Lett: Early Diagnosis and Treatment of Renal Tuberculosis. (Bradshaw lecture.)

UNIVERSITY OF LONDON.

WEDNESDAY, Dec. 2nd.—5 P.M. (London School of Hygiene, Keppel-street, W.C.), Prof. F. W. Twort, F.R.S.: The Study of Ultra-microscopic Viruses. (First of five lectures.)

ROYAL INSTITUTION, 21, Albemarle-street, W.

TUESDAY, Dec. 1st.—5.15 P.M., Prof. E. Mellanby, F.R.S.: Chemical Messengers of the Body.

INSTITUTE OF HYGIENE, 28, Portland-place, W.

WEDNESDAY, Dec. 2nd.—3.30 P.M., Dr. Alfred Cox: Holidays in Winter.

ROYAL FREE HOSPITAL, W.C.

FRIDAY, Dec. 4th.—9.45 A.M., Mr. McLaggan: Diagnosis of Diseases of the Ear, Nose, and Throat. 10.30 A.M., Miss Collier: Recent Advances in their Treatment. 11.30 P.M., Mr. Shattock: Some Diseases of Bone. 2 P.M., Dr. Hobhouse: Nervous Disorders. 3 P.M., Dr. Gregory: Children's Diseases.

SATURDAY.—9.45 A.M., Mr. Verrall: Orthopædics. 11.30 P.M., Dr. Brain: Common Skin Diseases. 2 P.M., Miss Mann: Squints. 3 P.M., Prof. Fleming: Uses of Radium in Gynæcology.

SUNDAY.—10.15 A.M., Dr. Hare: Diet in Chronic Rheumatism. Dr. Howitt: Differential Diagnosis and Treatment of Chronic Arthritis. Dr. Taylor: Pathology and Bacteriology of Rheumatism.

The course is open only to former students of the hospital.

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane-road, W.

MONDAY, Nov. 30th.—2.30 P.M., Dr. R. D. Lawrence: Diabetes and Diseases of Pancreas. [illegible] demonstration.

TUESDAY, Dec. 1st.—2 P.M., [illegible] rence

WEDNESDAY. Noon, clinica[illegible] con-(medical). 2.30 P.M., c[illegible] dson, ference (surgical). 4.3[illegible] F.R.S.: Virus Diseases.

THURSDAY.—2.30 P.M., Dr. Duncan White: radiological demonstration. 3.30 P.M., Mr. G. F. Gibberd: Toxæmias of Pregnancy.

FRIDAY.—2 P.M., operative obstetrics. 2.30 P.M., Prof. Seymour Barling: Acute Surgical Infections other than Bone. 3 P.M., department of gynæcology, pathological demonstration.

Daily, 10 A.M. to 4 P.M., medical clinics, surgical clinics or operations, obstetrical and gynæcological clinics or operations.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.

MONDAY, Nov. 30th.—10 A.M., skin clinic. 11 A.M., surgical wards. 2 P.M., operations, surgical and gynæcological wards, medical, surgical, and gynæcological clinics. 4.15 P.M., Mr. Green-Armytage: Obstetric Adventures.

TUESDAY, Dec. 1st.—10 A.M., medical wards. 11 A.M., surgical wards. 2 P.M., operations, medical, surgical, and throat clinics.

WEDNESDAY.—10 A.M., children's ward and clinic. 11 A.M., medical wards. 2 P.M., gynæcological operations, medical, surgical, and eye clinics. 4.15 P.M., Dr. Redvers Ironside: Diseases of the Skeletal Muscle.

THURSDAY.—10 A.M. neurological and gynæcological clinics. Noon, fracture clinic. 2 P.M., operations, medical, surgical, genito-urinary, and eye clinics. 4.15 P.M., venereal diseases.

FRIDAY.—10 A.M., medical wards, skin clinic. Noon, lecture on treatment. 2 P.M., operations, medical, surgical, and throat clinics.

SATURDAY.—10 A.M., children's and surgical clinics. 11 A.M., medical wards.

The lectures at 4.15 P.M. are open to all medical practitioners without fee.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Nov. 30th, to SATURDAY, Dec. 5th.—LONDON LOCK HOSPITAL, 91, Dean-street, W., afternoon course in venereal diseases (open to non-members).—NATIONAL TEMPERANCE HOSPITAL, Hampstead-road, N.W., 8 P.M., Tues. and Thurs., clinical and pathological course.—ST. MARK'S HOSPITAL, City-road, E.C., all-day course in proctology.—NATIONAL TEMPERANCE HOSPITAL, Hampstead-road, N.W., Wed., 8.30 P.M., Dr. Donald Hunter: Parathyroid. Fri., 8.30 P.M., Dr. R. A. Hickling: Pancreas.—These courses and lectures are open only to members.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

WEDNESDAY, Dec. 2nd.—2 P.M., Mr. T. Twistington Higgins: Diagnosis and Treatment of Genito-urinary Abnormalities. 3 P.M., Mr. J. H. Doggart: Development of Vision and Disturbances in Infancy.

Out-patient clinics daily at 10 A.M., and ward visits at 2 P.M.

NATIONAL HOSPITAL, Queen-square, W.C.

MONDAY, Nov. 30th.—3.30 P.M., Dr. Hinds Howell: The Meninges and Cerebro-spinal Fluid.

TUESDAY, Dec. 1st.—3.30 P.M., Dr. Critchley: Aphasia, Apraxia, &c.

WEDNESDAY.—3.30 P.M., Dr. Kinnier Wilson: Clinical Demonstration.

THURSDAY.—3.30 P.M., Dr. Riddoch: Epilepsy and its Variants.

FRIDAY.—3.30 P.M., Dr. Purdon Martin: The Cranial Nerves.

Out-patient clinic daily at 2 P.M.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.

WEDNESDAY, Dec. 2nd.—4 P.M., Mr. L. R. Broster: The Surgery of the Gall-bladder.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, Dec. 4th.—4 P.M., Mr. J. D. McLaggan: Acute Mastoiditis.

ST. JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE, 42, Ranelagh-road, S.W.

FRIDAY, Dec. 4th.—4.30 P.M., Dr. R. G. Gordon: Rheumatic Diseases of the Spine.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION.

WEDNESDAY, Dec. 2nd.—3 P.M., Major H. N. Stafford: The Rôle of the General Practitioner in the Air-raid Precaution Scheme.

MANCHESTER ROYAL INFIRMARY.

TUESDAY, Dec. 1st.—4.15 P.M., Mr. P. S. Wrigley: Diagnosis and Treatment of Cancer of the Rectum.

FRIDAY.—4.15 P.M., Mr. D. L. Sewell: Direct Examination of the Larynx with Cases.

MANCHESTER HOSPITAL FOR CONSUMPTION, Deansgate.

WEDNESDAY, Dec. 2nd.—4.30 P.M., Dr. Simon Kelly: Hæmoptysis.

ANCOATS HOSPITAL, Manchester.

THURSDAY, Dec. 3rd.—4.15 P.M., Clinical Meeting.

LEEDS GENERAL INFIRMARY.

TUESDAY, Dec. 1st.—3.30 P.M., Dr. Vining: Clinical Cases.

LEEDS PUBLIC DISPENSARY.

WEDNESDAY, Dec. 2nd.—4 P.M., Mr. A. Gough: The Treatment of Sterility.

TUESDAY, Dec. 1st.—8.30 P.M., Dr. J. Forestier: Rheumatoid Arthritis and its Treatment with Gold Salts; a Review of Eight Years' Experience. (Under the auspices of the Leeds Division of the British Medical Association.)

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.

WEDNESDAY, Dec. 2nd.—4.15 P.M. (Victoria Infirmary), Dr. Ivy McKenzie: Extrapyramidal Nervous Diseases.

NOTES, COMMENTS, AND ABSTRACTS

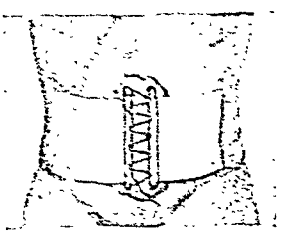
A GROUP OF CRIMINALS

Dr. Gabriel Langfeldt, who for many years has served as a prison doctor in Bergen, has undertaken a far-reaching study of 50 Norwegian criminals serving sentences for theft or burglary (Norsk mag. f. laegevidensk., June, 1936, p. 561). Besides carrying out Binet-Simon-Terman intelligence tests, he submitted them to a physical examination and friendly questioning, supplementing the information thus obtained by conversations with police officials and the prisoners' relations. He is unable to subscribe to Lombroso's conception of the criminal born as such, and finds much in the prisoner's antecedents to explain his conduct. He notes that in the case of criminals coming from religious homes it took many years for the inhibitions created by religious influences to disappear, and they often did so comparatively late in life under the action of alcohol or some other releasing factor. Of the 21 prisoners who had grown up in a religious atmosphere, only 3, however, had taken any interest in religion; and only 3 of the 50 had developed any political interests. In as many as 17 cases, the school records and other data showed that well-defined intellectural deficiency had become evident early in the child's career. The intelligence tests showed about half the prisoners to be mentally below normal; and it was observed that a relationship could be established between the level of intelligence and the age at which the prisoner was first sentenced; the higher the age on first sentence, the greater the intelligence. Dr. Langfeldt finds that such "criminogen radicals" as impaired intelligence or weakness of will, may not singly give birth to crime; but an undesirable combination of two or more of these "radicals" may produce a criminal disposition. "In my thieves there were often three or four such 'radicals' combined. This undesirable combination may be so dominating that . . . even the best surroundings cannot prevent their development." One of his recommendations is that every first offender should be subjected to a psychological-psychiatric examination if he is to be properly understood and given fair play.

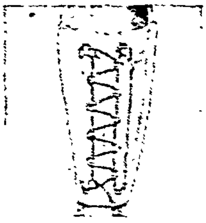
MIDWIFE AND BABY

IN his introduction[1] Dr. Moncrieff says that his aim has been to teach simple methods which may be carried out as easily in a cottage as in a well-equipped institution. The general plan of the book is to follow the programme of a baby's life, beginning with certain prenatal considerations and passing on through events likely to occur in the early days during which the midwife is largely responsible for the infant's welfare. The earlier sections, dealing with establishment of the breath, general hygiene, and feeding, will probably be those found most useful by the midwife. The importance of avoiding chill for a young baby is strongly emphasised. The new-born infant, Dr. Moncrieff says, is liable to have an incredibly low body temperature, and a special thermometer, reading as low as 90° F., should be used and used regularly. Much sensible advice as to bathing, clothing, ventilation of the room, and general care of the body is included in this part of the book. Dr. Moncrieff believes that many unnecessary operations for circumcision are performed, and that the majority might be avoided if the nurse and mother would take the trouble to loosen and retract the foreskin in the early days of life. Here and there the author tends to depart from his self-imposed rôle of simplicity, especially in the sections on disorders and malformations. Does every midwife readily understand such terms as œdematous reaction, brachial plexus, hypertonic saline, spina bifida, lanugo, and know just how to distinguish between small multiple abscesses which she is advised to treat with antiseptic lotion and pemphigus, for which she must secure immediate medical help? The premature infant has a section to itself, and one which all midwives might profitably study with care. The book is well printed and indexed.

NEW METHOD OF SECURING BANDAGES



THE Expedo Speedy Fastener is designed to facilitate the frequent dressing and inspection of wounds. Two long safety-pins are provided with hooks which allow of their being laced together. The pins are inserted at a little distance from the opposing edges of the material covering the dressing (whether bandage, adhesive strapping, or plaster-of-Paris) and are laced together under appropriate tension, which may be greater at one end of the wound than at the other. The use of these pins, which embody more than one device to prevent slipping of the lace, should be a convenient variant of the usual method of drawing together gaping abdominal wounds by threading tape through perforations in two strips of adhesive strapping. The expedo pins, being easily removed for sterilisation, can be reinserted into a freshened cut edge of strapping, and the dressing can thus be kept much cleaner. The manufacturers (Messrs. Alexander and Fowler, Pembroke-place, Liverpool 3) suggest that, by use of their fastener, a split plaster-of-Paris casing can be reapplied without bandaging. One expedo is placed along either cut edge, with the hooks slightly back from the edge. A plaster bandage, previously soaked in water, is then folded over the straight side of the pin and smoothed down, and when the plaster has dried the splint is ready to be laced up. Bandaging of split plaster is such an easy matter that it is doubtful whether trouble is here saved by use of the expedo, especially as at least two pins would be required along each edge to span a splint of the usual length. A more useful application of the method would be in the dressing of compound fractures, where movements of the limb as a whole must be restricted to a minimum, and where the inspection of the wound after the first toilet—often performed in the casualty department—may be a matter of some anxiety. It will be seen from the illustrations that the pin is provided with a tubular mount at either end for the insertion of a small safety-pin. This prevents all tendency to "rucking" when the pins are inserted into soft material.



The expedo fastener is made in three sizes (3, 4, or 5 in. long), and there is also a small size with one hook for connecting up any two sizes when bandaging over the elbow or knee.

ST. MARYLEBONE AND WESTERN GENERAL DISPENSARY

IN 1785 the St. Marylebone General Dispensary was founded to aid those who "being poor, sick, and distressed persons . . . have not occasion to go, or could not stay in an hospital." For some years it has been felt that as its neighbourhood—Marylebone-lane—has been changing to a business centre, there would be more scope for its work if it could be moved nearer to the homes of the poor. On Nov. 2nd, therefore, it was transferred to 48, Cosway-street, where in amalgamation with the Western General Dispensary, under the joint title of the St. Marylebone and Western General Dispensary, it will continue its work of "administering advice and medicines, for the relief of the sick and lame." The dispensary's activities include a children's rheumatism supervisory centre, clinics for respiratory diseases, surgery, varicose veins, ultra-violet radiation, departments for infant welfare and women workers, and a London County Council elementary school-children's dental clinic. It is proposed to make use of the additional space at the new premises by establishing a physical treatment centre which will be open in the evening to treat sufferers from rheumatism and other complaints who are still at work and are therefore unable to seek treatment at hospitals during the day. Reconstruction and new equipment have cost about £5500 and to raise this sum the dispensary is making its first public appeal for many years.

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[1] The Management of the New-born Baby: A Guide for Midwives. By Alan Moncrieff, M.D., F.R.C.P. London: Association of Maternity and Infant Welfare Centres. 1936. Pp. 48. 9d.

Vacancies

For further information refer to the advertisement columns

Aberdeen Royal Infirmary.—Hon. Jun. Asst. Surgeon for Ear, Nose, and Throat Dept.
Ayr County Council.—Obstetrician, £700.
Bath and Wessex Children's Orthopædic Hospital, Combe Park.—H.S., at rate of £120.
Battersea General Hospital, Battersea Park, S.W.—Cas. O. for Out-patients' Dept., at rate of £50.
Bedford, Bromham House Colony.—Res. Med. Supt., £650.
Bedford County Hospital.—Second H.S., at rate of £150.
Belfast, Royal Maternity Hospital.—Res. H.S., at rate of £100.
[illegible] *Hospital.*—Res. Surg. Reg., £100–10–£120.
[illegible] *Hospital.*—Res. Med. Reg., £200.
[illegible] *k Hospital.*—Res. Ear, Nose, and Throat. Surgeon, £700.
Board of Control.—Commissioner, £847.
Bradford Royal Infirmary.—Asst. Physicist, £300.
Brighton, New Sussex Hospital for Women, Windlesham-road.—H.P., £100.
Brighton, Royal Alexandra Hospital for Sick Children.—H.P. £120. Also Hon. Clin. Asst. to Hon. Phys.
Brighton, Sussex Eye Hospital, Eastern-road.—H.S., at rate of £150.
Chester, County Mental Hospital.—Jun. Asst. M.O., £350.
City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, E.—Res. M.O., £350. Also H.P., at rate of £100.
City of London Maternity Hospital, City-road, E.C.—Jun. Res. M.O., at rate of £80.
Cobham, Surrey, Schiff Home of Recovery.—Resident, at rate of £200.
Dreadnought Hospital, Greenwich, S.E.—Receiving Room Officer, at rate of £200. Also H.P. and H.S., each at rate of £110.
Dudley Guest Hospital.—[illegible]
Durham County Council.—[illegible] 500.
Durham, Seaham Hall [illegible] *and Girls.*—Jun. Res. M.O., £200.
Ealing, King Edward Memorial Hospital.—Two Cons. Physicians. Also Sen. Res. M.O., at rate of £250.
Eastbourne, Royal Eye Hospital, Pevensey-road.—H.S., £100.
East Ham Memorial [illegible] *E.*—H.S. to Spec. Depts. and Cas. [illegible]
East London Child [illegible] *E.*—Hon. Asst. [illegible]
[illegible] *N.W. London Hospital, Haverstock-* [illegible] rate of £100.
[illegible] —Hon. Asst. Ophth. Surgeon.
Hospital for Tropical Diseases, Gordon-street, W.C.—H.P., at rate of £120.
Hospital for Women, Soho-square, W.—Res. M.O., at rate of £100. Hon. Clin. Assts. to Out-patients. Also Registrar, £75.
Hospital of St. John and St. Elizabeth, 60, Grove End-road, N.W.—Anæsthetist
Hull [illegible] for Branch Hospital, £160. Also [illegible]
Ilfor [illegible] —Two H.S.'s, each at rate of £100.
Ipswich, East Suffolk and Ipswich Hospital.—Three H.S.'s to Special Depts., each £144
Kent County.—Asst. Pathologist, £700.
Kingston and District Hospital.—Visiting Surgeon, £300. Also Res. Asst. M.O., at rate of £375.
Leicester City General Hospital.—Res. M.O., at rate of £300.
Liverpool, Cleaver Sanatorium for Children, Heswall.—Res. Asst. M.O., £300.
Liverpool, Fazakerley Sanatorium.—Res. Asst. M.O., £200.
London Homœopathic Hospital, Great Ormond-street, W.C.—Pathologist and Bacteriologist, at rate of £350.
London Hospital Medical College, E.—Demonstrator of Anatomy and Histology and Demonstrator of Pharmacology, each £400.
London Skin Hospital, 40, [illegible] *W.*—Hon. Physician.
London University.—Geoffr [illegible] £450.
Marie Curie Hospital, 2, [illegible] —Res. M.O., £100.
Manchester Hospital for Consumption and Diseases of the Throa[t] and Chest.—Res. Surg. O. for Ear, Nose, and Throat Dept. £200.
Manchester, Monsall Hospital for Infectious Diseases.—Second Res. Asst. M.O., £350.
Manchester, St. Mary's Hospitals.—Four H.S.'s to Special Depts., each at rate of £50.
Middlesex County Council.—Asst. M.O., £400.
Norwich, Norfolk and Norwich Hospital.—H.P., H.S.'s to Spec. Depts. Also Cas. O., each at rate of £120.
Nottingham City Hospital.—H.S., at rate of £150.
Pontefract General Infirmary.—Res. M.O., at rate of £150.
Princess Elizabeth of York Hospital for Children, Shadwell, E.—Res. M.O., £200. Also H.S. and Cas. O., each at rate of £125.
Queen's Hospital for Children, Hackney-road, E.—H.P. and Cas. O., each at rate of £100.
Rochdale Infirmary and Dispensary.—H.P., £150.
Royal Cancer Hospital, Fulham-road, S.W.—H.S. to Radium Dept., at rate of £200.
Royal Free Hospital, Gray's Inn-road, W.C.—Half-time Reg. for Ear, Nose, and Throat Dept., first H.S., Med. and Surg. Regs., each £200. Res. Cas. O., at rate of £150. Dist. Obstet. Asst. [illegible] each at rate of £100. Also Res. [illegible] d Gyn. Unit, at rate of £75.
Royal Wa [illegible] *and Women, Waterloo-road, S.E.*—Hon. Surg. Reg.
St. John's Hospital, Lewisham, S.E.—H.S. and Cas. O., each at rate of £100.
St. Mark's Hospital for Cancer, &c., City-road, E.C.—H.S., at rate of £65. Also Clin. Assistantships for Out-patients' Dept.
St. Mary's Hospital for Women and Children, Plaistow, E.—Hon. Asst. Physician.
St. Peter's Hospital for Stone, Henrietta-street, W.C.—Clin. Assts. to Hon. Staff.
St. Thomas's Hospital, Medical Unit, S.E.—First Asst. £500–£600.
Salford Royal Hospital.—Res. Surg. O., £200. Also two H.S.'s, each at rate of £125.
Seamen's Hospital Society, Greenwich.—H.S. for Tilbury Hospital, at rate of £140.
Sheffield, Jessop Hospital for Women.—Sen. Res. O., at rate of £150.
Sheffield Royal Infirmary.—Clin. Asst. to Surgical Dept., at rate of £300.
[illegible] *ital.*—H.P., at rate of £150.
[illegible] M.O., £325.
[illegible] —H.P. and H.S., each at rate of £150.
Warwick, King Edward VII Memorial Sanatorium, Hertford Hill.—Jun. Asst. M.O., £250.
Weir Hospital, Grove-road, Balham, S.W.—Sen. Res. M.O., £200.
West End Hospital for Nervous Diseases, 73, Welbeck-street, W.—Hon. Med. Psychologist for Child Guidance Dept.
West London Hospital, Hammersmith-road, W.—Cas. O., £250. Also H.P. and two H.S.'s, each at rate of £100.
Westminster Hospital, Broad Sanctuary, S.W.—Asst. Surgeon.
West Riding of Yorkshire County Council.—Cons. Tuber. O., £750.
Wickford, Essex, Runwell Hospital for Mental and Nervous Disorders.—Sen. Physician, £550.
Winchester, Royal Hampshire County Hospital.—Res. Surg. O., at rate of £200. Also H.P. and H.S., each at rate of £125.
Wolverhampton and Midland Counties Eye Infirmary.—H.S., £150.
Woolwich and District War Memorial Hospital, Shooters Hill, S.E.—H.S., at rate of £100.
Worksop, Victoria Hospital.—Sen. and Jun. Resident, at rate of £150 and £120 respectively.
York County Hospital.—Asst. H.S. and Res. Anæsthetist, £150.
The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Presteign (Radnor), Barnsley (Yorks, W.R.), and Ebbw Vale (Monmouth).

Births, Marriages, and Deaths

BIRTHS

MATHESON.—On Nov. 13th, the wife of Dr. B. Matheson, Rowhill Mount, Wilmington, of a daughter.

MONCRIEFF.—On Nov. 19th, in London, to Honor, wife of Alan Moncrieff, M.D.—a daughter.

SWAN.—On Nov. 16th, at Costock, Loughborough, the wife of Dr. W. D. Swan, of a daughter.

WILSON.—On Nov. 18th, at Eastbourne, the wife of Mr. T. Henry Wilson, F.R.C.S., of a son.

MARRIAGES

BUCK—CLOVER.—On Nov. 14th, at All Saints Church, Drinkstone, Suffolk, Kenneth Charles Buck, M.D. Lond., to Ida Mabel, third daughter of Mr. D. Clover, Drinkstone Mills, Bury St. Edmunds.

DEATHS

CUMMING.—On Nov. 18th, at St. Mawes, Cornwall, John Hamilton Cumming, M.R.C.S. Eng., of Queen's Gate, London, aged 51.

LAWSON.—On Nov. 20th, Garnet Glong Lawson, M.B. Vict., D.P.H., of Dulwich-road, Herne Hill, late of Hebden Bridge, aged 61.

McMURRAY.—On Nov. 17th, Alexander Muir McMurray, M.B. Glas., of Redcar, Yorks.

OGILVIE.—On Nov. 20th, at Edinburgh, Major-General Sir Walter Ogilvie, K.B.E., C.M.G., M.B. Edin., late I.M.S. and 40th Pathans, aged 67 years.

TAYLOR.—On Nov. 21st, at Thornbury, Bradford, Joseph van Someren Taylor, L.R.C.P. & S. Edin. (late Capt. R.A.M.C.), aged 55 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths

ADDRESSES AND ORIGINAL ARTICLES

RENAL TUBERCULOSIS

EARLY DIAGNOSIS AND TREATMENT *

By Hugh Lett, C.B.E., M.B. Vict., F.R.C.S. Eng.

CONSULTING SURGEON TO THE LONDON HOSPITAL

Renal tuberculosis is not a primary and independent disease. It is a local manifestation in a tuberculous subject, and the result of a systemic infection.

Its incidence in different parts of the world varies with the local prevalence of tuberculosis in general. Where this disease is common we find a relatively large number of cases of renal tuberculosis, but where it is seen less frequently there is a corresponding diminution in their number.

In London and the surrounding districts renal tuberculosis is comparatively rare. An analysis of the records of the London Hospital shows that among 116,713 cases admitted to the surgical wards during the twelve years 1923–34 there were only 208 of renal tuberculosis, and in more than one-third of these cases nephrectomy was considered inadvisable on account of the serious condition of the patient and active tuberculosis elsewhere, or because the disease was bilateral. An indication of its relative frequency to other surgical diseases of the urinary tract may be gathered from the fact that during the same period there were 1248 cases of urinary calculus alone.

In Paris, on the other hand, no less than 568 nephrectomies were performed in Marion's clinic during the ten years 1919–28. He states that 20 per cent. of the patients admitted to urological clinics suffer from renal tuberculosis, and that in a series of 100 consecutive operations on the kidney, 50 were performed on patients suffering from this disease. Mr. Swift Joly kindly informs me that in a similar series of operations at St. Peter's Hospital there were 27 cases.

Renal tuberculosis is therefore far more common in Paris than in London, and this fact is associated with the greater frequency of general tuberculosis in the former city. In the year 1930 the incidence of tuberculosis in Paris and London was 231 and 99 respectively per 100,000 residents.

In a review of 742 cases of hæmaturia which came under my observation in the genito-urinary department of the London Hospital during the years 1924–30, Debenham found that urinary tuberculosis accounted for 5 per cent. This may be compared with Fullerton's experience in Belfast and the surrounding districts where tuberculosis was considerably more prevalent than in London. In a series of 600 cases of hæmaturia he found that 16·6 per cent. were due to tuberculosis.

ITS ASSOCIATION WITH TUBERCULOSIS ELSEWHERE

In many papers on renal tuberculosis reference is made to the presence of tuberculosis in other parts of the body, but the proportion of cases in which such lesions are said to have occurred varies. The difference between the statistics must depend to some extent on the care taken in obtaining an account of the previous health of the patient, and on the thoroughness with which the rest of the body is examined. Bugbee in a recent paper reported that in a series of 79 patients upon whom he had performed a nephrectomy there was evidence or a history of tuberculous disease elsewhere in 84 per cent.

When extra-urinary lesions are present they are most commonly found in the lungs, but in the male sex genital tuberculosis occurs with considerable frequency. Among the 124 male cases in the London Hospital series there were 45 in which there was tuberculosis in some part of the genital system, the epididymis was affected in 32, and in the remaining 13 evidence of tuberculosis in the prostate or vesiculæ seminales was found on rectal examination. In 8 of the cases in the former group epididymectomy or orchidectomy had already been performed.

During the last few years the problem has been approached from another angle, and a careful routine examination of the urine has been made in a certain number of patients undergoing treatment for tuberculosis outside the urinary tract. R. I. Harris investigated 100 cases of bone and joint tuberculosis, and found by inoculation of guinea-pigs that 16 (37 per cent.) of the adults and 9 (13·8 per cent.) of the children had tubercle bacilli in the urine. Band reported that among 174 cases of extra-urinary tuberculosis, tubercle bacilli were isolated from the urine by animal inoculation in 25.

We see therefore how commonly renal tuberculosis is associated with obvious tuberculous lesions in other parts of the body, and that it frequently develops in patients who are undergoing treatment for tuberculosis in the lungs, bones, joints, or elsewhere.

EARLY SIGNS AND SYMPTOMS

In the early stages symptoms may be entirely absent. Thomas and Kinsella, who were the first to carry out a routine examination of the urine in cases of extra-urinary tuberculosis on a large scale, say that among those in which they found tuberculosis of the kidney there were no symptoms in 11·1 per cent.

Frequency of micturition is nearly always the first and may be the only symptom; in some cases it soon disappears, but when it persists it is generally associated with pain. When these two symptoms are slight and temporary they are often regarded as of no importance, the necessary examinations are omitted, and consequently the tuberculosis of the kidney remains unsuspected.

Hæmaturia.—Although the hæmaturia that occurs in urinary tuberculosis is usually due to ulceration of the bladder, it may come from the kidney and precede all other signs and symptoms by weeks, months, or even years. Symptomless hæmaturia in young subjects should always arouse the suspicion of renal tuberculosis, and if tuberculosis is discovered in any other part of the body the presumptive evidence is very strong. In 16 of the London Hospital cases hæmaturia occurred independently of any other signs or symptoms. In 5 of them it was still the only sign when the patient came under observation, and had recurred at longer or shorter intervals over periods of from three weeks to ten years.

The urine.—Pus is nearly always present, except in very early cases, or when the focus in the kidney is occluded, but if the urine is sent for bacteriological examination it is usually reported to be sterile. Pus in a sterile urine is recognised as being very suggestive of renal tuberculosis. It may occur however in 11·5 per cent. of cases of urinary calculus, excepting prostatic calculi, and also in some cases of long-standing chronic prostatitis. In the absence of pus there may be an excess of leucocytes with or without red blood corpuscles. The constant presence of albumin in the absence of pus, blood, casts, or any obvious medical cause is another sign of importance.

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* The Bradshaw lecture for 1936 delivered before the Royal College of Surgeons of England on Dec. 3rd.

Time does not allow me to discuss the various methods of finding the tubercle bacilli, but reference may be made to the fact that although tubercle bacilli are usually associated with pyuria they may be found in urine which contains no pus and is clear to the naked eye.

Cases of chronic pyelitis and cystitis which do not improve under routine treatment, particularly those in which the onset has been gradual and the symptoms have become steadily more pronounced, should always be submitted to a full urological examination in order to exclude the possibility of tuberculous disease. Although the urine is generally sterile in cases of renal tuberculosis this is not always so, and Constantinesco and Vintici found that a mixed infection was present in 11·4 per cent. of 561 cases. Kretschmer in a smaller series of 43 adolescent patients reported a mixed infection in the high proportion of 55·9 per cent. The diagnosis in cases of chronic and progressive cystitis or pyelitis is therefore not complete with the discovery of the *Bacillus coli* or other micro-organisms in the urine, for the condition may be primarily one of tuberculosis and the tubercle bacilli overlooked unless a special search for them is made. Sometimes they are not found even on repeated examinations and then the diagnosis can only be determined by a complete urological investigation.

Renal tuberculosis is commonest in young subjects and at its onset may give rise to prolonged malaise, anæmia, loss of weight, and perhaps an occasional slight rise of temperature. In such circumstances the possibility of tuberculous disease of the kidney should be borne in mind. Among the 208 patients in the London Hospital series, 111 (53·3 per cent.) were between the ages of 16 and 30. When the urinary findings are positive, further examination is necessary in order to ascertain which kidney is affected and how much destruction has already taken place.

Cystoscopy may be entirely negative or it may show a diminution in the capacity of the bladder, the presence of a mild cystitis, miliary tubercles, or even ulceration. Attention will be directed in particular to the orifices of the ureters, in some cases the one on the affected side may be œdematous, with congestion of the mucosa in the immediate neighbourhood such as is seen in cases of simple pyelitis, while in others there may be tubercles or even ulceration immediately above the orifice.

Catheterisation of the ureters enables us to ascertain the presence or absence of tubercle bacilli, pus, or an excess of leucocytes in the urine from each kidney. Opinion is divided as to the value of estimating the renal efficiency, but if it is much lowered on one side it strongly suggests disease of the corresponding kidney.

Intravenous pyelography is often of great value, although when the lesions are very small the kidney will appear to be normal. As the disease progresses the films will show dilatation of the pelvis and calyces, their outlines become irregular, and the calyces rounded and stumpy. One or more of the calyces may be obliterated, and later still the dye may show a cavity which is perhaps isolated or may only communicate with the pelvis by a narrow neck. Dilatation of the ureter is not uncommon in the early stages.

Unfortunately we cannot rely on intravenous pyelograms in every case, as sometimes the outlines are so indefinite that it is impossible to draw any conclusions from them. When the diagnosis still remains in doubt we may have recourse to catheter pyelograms; they will give an admirable definition of the pelvis and calyces, but they should not be taken indiscriminately. Some surgeons say that they are not necessary and indeed that they are inadvisable, as the procedure is not entirely free from risk and cases have been reported in which the patients died shortly afterwards from acute miliary tuberculosis. The greatest care must be taken to prevent overdistension of the pelvis, otherwise the delicate mucous membrane at the junction of the pelvis and a calyx may be ruptured, pyelovenous backflow take place, and fluid infected with tubercle bacilli pass from the pelvis of the kidney into the venous system. If, however, adequate precautions are taken the risk is very small.

EARLY DIAGNOSIS

Every surgeon who has seen a number of cases of renal tuberculosis must be impressed by the frequency with which the patients present themselves with extensive destruction of the kidney, although they assert positively that they have been entirely free from symptoms until the last few months or even weeks. The following cases may be quoted as examples.

A man, aged 22, said that he had never had any symptoms until two weeks previously, when frequency and pain on micturition with occasional slight hæmaturia began and persisted until his admission to hospital. There were numerous calcareous deposits in the kidney and a large caseous area in its upper pole.

Another patient, aged 36, said that he had had pain and frequency of micturition for eight weeks, with hæmaturia on one or two occasions. The left kidney was very large, the site of extensive caseocavernous tuberculosis and its function was negligible.

Is it inevitable that such a large proportion of these cases should be so advanced by the time that we see them, or is it possible to recognise them sooner, and make the diagnosis at an earlier stage of the disease?

The progress of medicine and surgery has led inevitably to specialisation in many branches. The specialist in his turn has succeeded in developing to a remarkable degree the science of his subject and the art and craftsmanship of treatment. But there is unquestionably a danger that he may lose his sense of perspective, focus his attention on that part of the body with which he is most concerned, and fail to make an adequate survey of the whole system.

This is a matter which concerns tuberculosis very closely, and a full appreciation of the fact that renal tuberculosis is hæmatogenous in origin and is only one manifestation of a systemic infection has a close relation to its early diagnosis. It is essential that we should recognise that any patient who is the subject of tuberculosis may sooner or later show signs of this disease in the kidney, that its onset is insidious and may be unaccompanied by any symptoms, and that not infrequently it can be detected only by examination of the urine. A regular systematic examination of the urine should be made therefore in the case of every patient under treatment for tuberculous disease, whether it is situated in the lungs, bones, joints, epididymis, or elsewhere. If such a routine examination were practised generally, the number of patients who come to us when the disease is advanced would be considerably less, many more cases would be diagnosed at an early stage, and there are grounds for believing that a few cases could be cured permanently without operation.

Treatment

THE EARLY CASE

Medlar, Liebenthal and Huth, and Band have shown that the presence of tubercle bacilli in the separated urine is always due to a tuberculous lesion in the kidney. Further, the work of Medlar and others has proved that it is possible for small tuberculous lesions in the kidney to heal and be replaced by fibrous tissue. These two facts have an important bearing on the question of the possible cure of early renal tuberculosis by medical treatment.

During the last few years attention has been drawn to transient tuberculous bacilluria, particularly in patients who have been undergoing treatment for extra-urinary tuberculosis. What is the ultimate fate of the kidney in these cases? Does the disease remain quiescent for a time and then become active once more, or can we hope for a permanent cure? It is probable that in a few of these cases the lesions in the kidney heal completely, but the proportion in which this is likely to take place cannot be estimated until we receive full reports of the subsequent progress of a large number of patients. Reference has been made to the 25 cases of extra-urinary tuberculosis in which Band found the urine positive. In 4 of them tubercle bacilli were absent from the urine at the end of two to three years.

If the urine is examined at regular intervals and remains constantly free from tubercle bacilli and other abnormal constituents for two years, and if at the end of this time a full urological examination shows no evidence of tuberculous disease we are justified in believing that a cure has taken place.

A patient, aged 26, complaining of some discomfort on micturition, with hourly frequency during the day and having to rise once or twice at night, was found to have tubercle bacilli, red cells, and occasional leucocytes in the urine. The presence of tubercle bacilli was confirmed on two further examinations, and I then carried out a full investigation. The bladder capacity was normal and nothing of importance was seen with the cystoscope. Tubercle bacilli were found in the urine from each kidney. The function of the left kidney was normal, but the urea-concentration test showed only 0·96 per cent. of urea in the urine from the right kidney, and the excretion of indigo-carmine and Uroselectan was very slightly slower than on the opposite side. Pyelograms were negative. He went to Ventnor where he was under the care of Dr. G. O. Hempson for four months. He improved rapidly and after three months inoculation of a guinea-pig proved negative. His symptoms have not recurred, and when he was seen 3½ years after their disappearance the urine was normal and contained no tubercle bacilli, no red cells, leucocytes, or excess of epithelial cells. Intravenous pyelograms gave a very clear picture and the pelvis and calyces of each kidney appeared to be normal in every respect.

In favourable conditions therefore early renal tuberculosis can be cured by general treatment alone, but this is only possible if the disease is in its initial stages, and the lesion is so small that it cannot be detected by pyelography.

THE MORE ADVANCED CASE

One of the most striking features of renal tuberculosis is a periodical remission of symptoms, which may last for months or even years. Sometimes the symptoms will entirely disappear or at the most be so slight that both the patients and their doctors may think that the disease is cured.

The improvement is not limited to relatively early cases but may be seen in patients in whom the disease is so advanced that the kidney is grossly disorganised, and may even present a tumour which can be readily felt on abdominal examination. In such cases obstruction in the ureter or occlusion of the affected area from the pelvis of the kidney prevents the tubercle bacilli from passing down to the bladder, and in many instances ulceration in the bladder will heal and the mucosa regain its normal appearance. These cases are sometimes described as examples of autonephrectomy, an unhappy and misleading term as it implies a permanent cure. This is very exceptional, and although some patients have been cured clinically and remained well for many years, such a kidney should be regarded in general as a menace to the patient and should be removed, provided that the opposite kidney is healthy. It is a focus whence the disease may spread to other parts of the body; miliary tuberculosis may occur; a perinephric abscess may form; and if at any time the resistance of the patient is diminished, communication with the bladder may be re-established and the symptoms recur.

An absence of symptoms for one or two years or even longer and a urine which is free from tubercle bacilli or pus on repeated examinations do not justify the assumption that the patient is cured. In the light of our present knowledge such an event is almost impossible once the disease has progressed beyond a very early stage, and although one or two instances have been reported which may be accepted as spontaneous cures of advanced disease, they are so exceptional that they must be regarded as pathological curiosities.

In a recent paper Schaffhauser says that only two undoubted cases controlled by adequate microscopical and bacteriological examinations have been recorded, one by Wildbolz and the other by Castaigne. The following case is of interest in this connexion.

A man of 48 complained of recurring attacks of renal colic. Nine years previously he had had two attacks of hæmaturia associated with renal colic and was in a nursing-home for three months. Tubercle bacilli were found in the urine on numerous occasions over a period of twelve months, but for the last eight years every examination of the urine had been negative. When I saw him the urine was sterile and contained only a few leucocytes, no red cells, and no tubercle bacilli; on cystoscopy the orifice of the right ureter could not be seen. A very large lobulated kidney was removed containing turbid fluid. The kidney substance had disappeared almost entirely and was represented by a thin shell of what appeared to be fibrous tissue. The ureter was a thin cord and its lumen would not admit the finest probe. Microscopical examination showed evidence of old-standing tuberculous disease. Cultures of the fluid from the kidney remained sterile and no tubercle bacilli could be found.

The Operative Treatment

When the diagnosis of gross renal tuberculosis has been established the question of nephrectomy has to be considered. An active lesion in the lungs or elsewhere is a definite contra-indication to operation, for this focus will remain active, the ulceration in the bladder will persist, and it is probable that before long the remaining kidney will show signs of the disease. As Thomas has said, surgery will not benefit the patient until he has developed his resistance to tuberculosis, and until he has done so the removal of one focus will not help to control the disease in other parts of the body. If pyelograms show evidence of tuberculosis in both kidneys operation is inadvisable.

The wider our personal experience of renal tuberculosis becomes, and the more we learn of its course and the results of operation both immediate and remote, the more we are convinced of the value of raising the resistance of the patient in certain cases before submitting him to a nephrectomy. The change that follows sanatorium treatment, a visit to the sea, or even prolonged rest in bed is very remarkable. The general health of the patient is improved, ulceration in the bladder diminished, and the symptoms are greatly relieved. He goes through the operation more easily, his convalescence is more rapid, and there is an appreciably smaller risk of tuberculous suppuration and sinus formation.

In relatively early cases preliminary treatment on these lines is of great value, and operation should never be performed as soon as the diagnosis is made, for the results of immediate operation are often unsatisfactory. Some patients have died within a few weeks or months from miliary tuberculosis, and in others, although the operation was performed with the greatest care, the wound has broken down three or four weeks later and a sinus persisted for many months. There is also a danger that within a short time of the operation disease in the remaining kidney may declare itself. This supports the opinion now held by many surgeons that the disease is primarily bilateral, although when the patients come under observation the little foci in the second kidney do not communicate with its pelvis, or are healed or quiescent. Examination of the urine and pyelography will give no evidence of their presence, and consequently the condition is regarded as unilateral.

I have seen cases in which one kidney was the site of advanced disease, and the other excreted urine which contained tubercle bacilli and an excess of leucocytes, though its pyelograms were normal. After a stay of a few months in a sanatorium the tubercle bacilli and leucocytes were no longer present in the urine from the second kidney and the pyelograms remained unaltered; the first kidney was then removed and the patient remained well.

Nephrectomy for renal tuberculosis is not an operation of emergency; early cases and those in which the symptoms are acute should always undergo preliminary general treatment.

THE OPERATION

There are certain points in connexion with the technique of the operation on which there is general agreement: firstly, that the kidney should be handled as gently as possible lest tubercle bacilli and their toxins be forced into the bloodstream, and secondly, that the greatest care should be taken to prevent the escape of any pus or tuberculous material from the kidney or ureter into the surrounding tissues. Opinions still differ on the question of removing the perinephric fat, and the length of the ureter which should be excised.

If the *perinephric fat* is adherent to the kidney over one or more areas it should always be removed. Tubercle bacilli have been demonstrated in such adhesions, and if the latter are broken down the bacilli may escape into the wound. There is also the risk of opening a small abscess in the cortex of the kidney which may have perforated the capsule and be shut off by the perinephric fat. The serious results which may follow tuberculous infection of the large raw area which is left after nephrectomy compel us to take every precaution against such a possibility. If however the perinephric fat is not abnormally adherent there is less risk in leaving it, but its removal together with the kidney does not add very materially to the difficulty of the operation, and in view of the free communication between the lymphatics in the perinephric fat and those in the kidney it would seem to be a wise precaution, particularly in early cases.

The close relation of the adrenal gland to the kidney must be borne in mind, and if the perinephric fat is very adherent care must be taken that the adrenal is not removed with the kidney. Wildbolz has recorded two cases in which this occurred and the patients died within a few days from adrenal insufficiency. At the autopsy the remaining adrenal gland was found to be extensively diseased in each case.

The ureter.—The operative treatment of the ureter has been an open question for many years, and there has never been general agreement as to the extent to which it should be removed. At the present time most surgeons remove as much as can be reached conveniently through the lumbar wound, which means in practice down to the level of the pelvic brim, and only a few remove the ureter in what is practically its whole length by dividing it close to the bladder. An appreciation of the macroscopic changes which may take place in the ureter is essential to an intelligent discussion of the problem.

In early cases the ureter may display little external evidence of disease, apart perhaps from some slight thickening and congestion of its superficial vessels. If it is laid open, patches of congestion, miliary tubercles, tuberculous ulceration, or granulomatous tissue may be seen.

In a second variety the ureter is much thickened and converted into a rigid rod-like structure. It is considerably shortened, and pyelograms may show that it no longer follows its usual curved course in the pelvis but extends in a straight line from the kidney to the bladder. On cystoscopy further evidence of this shortening may be seen in its gaping circular orifice which is drawn up above its normal position in the bladder, so that there may be a little difficulty in determining its position with the cystoscope. The lumen of the ureter as seen on pyelography may be irregular from tuberculous deposits in its wall. Ureters of this type can be palpated through the vagina and sometimes on rectal examination, and before we had the modern means of urological investigation at our disposal they were regarded as so characteristic that in suspected though doubtful cases some surgeons made a small incision in the iliac region and palpated the ureter in order to determine the diagnosis.

In a third variety the ureter is dilated and may be as much as an inch in diameter. Dilatation is common in the relatively early stages of the disease and various theories have been offered in explanation, varying from simple toxic atony of the ureter to spasm of its sphincter or temporary obstruction caused by the œdematous changes in and around it as it passes through the bladder wall. In the more advanced cases the dilatation is due to the presence of a stricture. Although there may be multiple strictures there is usually only one, which is found as a rule in the last two inches of the ureter. The presence of such a stricture is demonstrated by pyelography and also by the obstruction it offers to the passage of a catheter up the ureter. Occasionally narrowing of the terminal part of the ureter results from fibrosis extending from tuberculous disease in the neighbouring vesicula seminalis and vas which lie in immediate apposition to it.

Lastly there is the atrophic type. The ureter is converted into a thin cord, its lumen is very small and may even be obliterated in the whole or part of its length.

The ureter after nephrectomy.—Those surgeons who remove only the upper part of the ureter say that the remaining part need not be removed, as in the course of two or three years it will be converted gradually into a fibrous cord. This is true, but what of those years? Does the stump of ureter remain innocuous or can it have any ill effect? There is no doubt that in many cases it does no harm, the patients make a rapid recovery from the operation, all their symptoms disappear, and they remain well.

Other patients however are not so fortunate: the tuberculous process in the ureter does not always subside; it may continue, extend through the wall of the ureter and cause abscesses in the pelvis or iliac fossa. In some cases such abscesses may present in the lumbar region, the wound break down weeks or even months after the operation, and a sinus result which may continue to discharge for many months or even years.

Still more important is it to remember that infection from the stump of the ureter may keep up the cystitis. This is a possibility which must be regarded with grave apprehension, for in cases of severe and prolonged cystitis the disease may spread to the opposite ureter. An ascending infection may then take place along its mucous membrane or in the lymphatics in and around its wall and lead eventually to tuberculosis of the remaining kidney. Equally important are the dangers of the development of a stricture or obstruction from caseous deposits in the wall of this ureter which will lead to hydronephrosis and ultimate death from renal failure. In isolated cases a sudden obstructive anuria has occurred. Prolonged contraction of the bladder may result in patency of the ureteric orifice, reflux of the urine up to the kidney, and consequent dilatation of the ureter and renal pelvis with gradual destruction of the kidney substance.

It is therefore essential that every effort should be made to control the bladder infection as soon as possible. We know that sometimes the bladder may recover with remarkable rapidity and the ulceration be healed within two or three weeks of the operation, but in many cases a considerable time may elapse before this takes place, as long as from two to five years according to Wildbolz, and there are still others in which the ulceration persists indefinitely. The delay may be due to infection from the remaining kidney or a tuberculous focus in some other part of the body, or to the low resistance of the patient, but in a few cases the remaining portion of the ureter is responsible.

Lastly, attention should be drawn to the colicky pain which may arise from the ureter itself. This is likely to occur if the lower end of the ureter is narrowed by a definite stricture or other tuberculous changes.

There are three cases among my personal records in which I regret that I did not make a complete resection of the ureter.

The first patient was a man of 23 who had a large tuberculous pyonephrosis. The wound broke down completely three and a half weeks after the operation. He had prolonged sanatorium treatment, but eighteen months later he still had a sinus which gave vent to a profuse discharge. I then resected the remains of the ureter, with the result that in two weeks the sinus was closed and the wound soundly healed. This patient was operated upon nine years ago and unfortunately he cannot be traced.

The second patient was a girl who had an adherent and extensively diseased kidney. Before operation the bladder was normal, apart from inflammation round the orifice of the corresponding ureter. The wound healed rapidly and she was greatly improved. Three months later however she complained of a return of the bladder symptoms, ulceration gradually developed round the orifice of the ureter and ultimately multiple small ulcers appeared in the rest of the bladder. Fifteen months after the nephrectomy the remaining portion of the ureter was removed. She made a rapid recovery and the ulcer round the ureteric orifice was almost entirely healed in two weeks. Four years later she was quite well.

An interesting feature in this case was the gradual development of ulceration in the bladder after the nephrectomy.

The third patient was a woman of 29 who had an enlarged kidney with an abscess in its upper two-thirds. Nephrectomy was performed and three inches of the ureter removed. Soon after leaving the hospital she began to have colicky pain in the right inguinal region which seemed to radiate to the bladder. The pain recurred at intervals and used to persist for several weeks, when she would be free for a time. It was not severe, but was described as "frightfully annoying." She complained of this pain for eighteen months, it then disappeared and she had no further symptoms. She is now well nine years after the operation. Incidentally attention should be drawn to the fact that the portion of ureter which was removed with the kidney showed no macroscopical signs of disease.

It is not suggested that complete removal of the ureter in every case would lead to spectacular results, but it is reasonable to assume that it would save some patients from the discomfort and danger of prolonged tuberculous suppuration and in others facilitate the healing of the bladder. It is important that we should do everything in our power to enable the bladder to recover as soon as possible, bearing in mind the serious changes which may take place in the remaining kidney from extension of the infection to its ureter, or from prolonged contraction of the bladder. Suter, in reporting the ultimate cause of death in 127 cases, found that 40 per cent. of the men and 37 per cent. of the women died from tuberculosis of the remaining kidney, and Persson found that 21 out of 45 cases died from the same cause. There can be little doubt but that in many of them the infection reached the kidney through the blood stream, but there is more than a probability that in others it was due to an ascending infection from the bladder.

It appears therefore that there is a reasonable argument for removing the ureter in every case unless it is atrophied. Valuable information as to the condition of the ureter can generally be obtained by intravenous pyelography, pelvic examination (particularly in women), cystoscopy, and if necessary catheterisation of the ureter, but intravenous pyelography will be of no assistance of course if the corresponding kidneys fails to secrete the uroselectan.

If one of our objects in the surgical treatment of urinary tuberculosis is to cure the bladder as quickly as possible, it does not seem logical to leave four or five inches of a tuberculous ureter in direct communication with the bladder.

Ureteronephrectomy.—Opinions are divided as to whether the operation should begin with the separation of the kidney and division of its vascular pedicle, or with the division of the ureter. The main argument in favour of the former is that in this case the division of the ureter is the last step in the operation prior to the closure of the wound, and therefore the risk of infection of the retroperitoneal tissues by the contents of the ureter or its divided surface is reduced to a minimum.

If it is decided to operate upon the kidney first, when it has been separated and its vascular pedicle ligatured and divided, it is pushed downwards towards the pelvis and the wound closed. The patient is then turned on to his back, a subumbilical paramedian incision is made, the ureter freed up to the brim of the pelvis and divided close to the bladder, and the kidney and whole length of the ureter are brought out through the incision. If, on the other hand, it is decided to begin the operation by division of the ureter, I prefer to make a low inguinal incision and split the muscles on the lines suggested by Kidd. The ureter is freed up to the level of the pelvic brim, divided close to the bladder, and the wound closed. The patient is then placed in the lateral position and the kidney and ureter removed in the usual way. In a straightforward case this does not add more than fifteen minutes to the length of the operation, and although my experience is limited to a short series of 16 cases I have never regretted it. There has been no evidence of any increased shock and the inguinal incision has healed firmly by first intention in every case. In one patient who had tuberculous disease of the epididymis on the same side I removed the whole length of the vas and performed epididymectomy. He was operated upon comparatively recently, but he is now well rather more than two years after the operation, and there is no evidence of tuberculosis anywhere in the genito-urinary tract.

If however the ureter is much dilated it is perhaps more prudent to begin the operation by freeing the kidney and subsequently dividing the ureter.

The technique of the division of the ureter calls for comment. Two ligatures are placed above and two below the point at which it is to be divided. It is then severed by the diathermy current and pure carbolic is applied to the two ends. The treatment of the distal end is important. In the first place it is essential to prevent any infection of the surrounding tissues, and in the second, adequate precautions must be taken against the possible formation of a urinary fistula if the ureter is rigid and patent. Such cases have been described, but there is little risk of such an event if the above technique is followed. The second ligature on the upper end is an additional precaution against any leakage from the ureter while it is being drawn up to the lumbar wound. Removal of part of the bladder wall with the ureter has been practised, but it does not appear to be necessary or sound surgery, and it adds materially to the duration and risk of the operation.

TREATMENT AFTER OPERATION

Our responsibilities however do not end with the operation. It is true that many patients have been discharged from hospital and have remained well without any subsequent supervision or treatment, but too many have dragged on with ulceration of the bladder and possibly a discharging sinus, and have ultimately died from tuberculosis of the bladder and remaining kidney or of some other part of the body. We have seen how frequently there is evidence of quiescent or active tuberculosis elsewhere, and although there are some few cases in which the most careful clinical examination fails to reveal any evidence of the disease except in the urinary tract, we must remember that renal tuberculosis is the result of a systemic infection and that a small undetected focus may be present in the lungs or some other part of the body. The importance of building up the general resistance of the patient and increasing his immunity must therefore be recognised and they must be considered an essential part of the treatment, and Bugbee and Keyes in the United States, and Wade, Hammond, and Jacobs in this country have emphasised the great value of a prolonged stay in a sanatorium. Marion makes the pregnant statement that whereas the prospect of cure by operation is only 50 per cent. among the poorest classes, it is as high as 80 per cent. in the well to do. A review of the statistics published by different surgeons suggests that, in general, nephrectomy for unilateral renal tuberculosis results in a cure in from 55 to 60 per cent.

Tuberculin is of undoubted value, but the dose must be carefully regulated, for if too much is given the patient will have a relapse, hæmorrhage will occur, the bladder symptoms return, and the work of weeks or months will be undone.

Conclusion

We cannot view the present position of renal tuberculosis with complacency; the disease carries a high mortality and is attended by great suffering. There is unfortunately a number of cases in which there is but little prospect of cure, whatever the treatment, but on the other hand there is ample justification for the belief that on the whole better results can and will be obtained.

This however can only be brought about if certain fundamental facts are widely appreciated and acted upon.

1. The onset of renal tuberculosis is insidious and may be symptomless. Repeated examinations of the urine should be made therefore in the case of every patient undergoing treatment for extra-urinary tuberculosis. If such examinations were carried out as a routine, many more cases of tuberculosis of the kidney would be recognised in their early stages.
2. Some cases of very early renal tuberculosis can be cured by medical treatment provided that they are recognised before there is any alteration in the outline of the pelvis or calyces.
3. Unilateral renal tuberculosis becomes surgical as soon as pyelograms show the changes characteristic of the disease, for it is then beyond the hope of cure by medical means alone.
4. The patient may be free from disturbing symptoms for prolonged periods, but the disease will almost invariably progress and ultimately prove fatal unless the kidney is removed.
5. Sanatorium treatment should always follow nephrectomy, and in some cases precede it: for renal tuberculosis is not a primary disease; it is always secondary to a systemic infection and indicates a lowered resistance to the tubercle bacillus.

The early diagnosis and the treatment of renal tuberculosis do not concern the surgeon alone. In no disease which affects the human body is the close coöperation of the general practitioner, the physician, and the surgeon more desirable and indeed essential. It is only by such coöperation that we can hope to improve our results.

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TREATMENT WITH PRONTOSIL OF PUERPERAL INFECTIONS

DUE TO HÆMOLYTIC STREPTOCOCCI [*]

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IN a previous paper we reported the treatment of streptococcal peritonitis in mice by the injection of Prontosil soluble, and gave an account of 38 cases of human puerperal fever treated by injections of the dye together with oral administration of the less soluble compound, Prontosil.[†] The present paper deals with our experience in treating a further series of 26 consecutive cases, and summarises the impressions gained to date.

During the next few months it is proposed to treat a new series of patients with the nearly related compound, *p*-aminobenzenesulphonamide, which has given results even better than prontosil in experimental infections of animals, and confers a much greater bactericidal power upon the blood. A comparison of the clinical results obtained with the two substances will be published later.

The Twenty-six New Cases

With the exception of one case, whose temperature did not exceed 100° F. at any time while in hospital, all were notifiable as "puerperal fever," and with the same single exception all were infected by hæmolytic streptococci belonging to Group A (Lancefield). The pathological conditions are summarised in Table II.

Dosage.—The two compounds, prontosil and prontosil soluble, have been employed as before in all cases, the former by the mouth, the latter by intramuscular injection. Our present practice is shown in Table I.

The injections are diminished pari passu with the fall of the temperature and discontinued one or two days after this has reached the normal level. The doses by the mouth are also diminished from 12 to 6 tablets with clinical improvement, but the 6 tablets are continued for several days after the normal temperature has been reached. In the gravest cases large doses have been continued for a week or more. The Figure shows a typical scheme of dosage.

TABLE I

—	By mouth.	By intramuscular injection.
Gravely ill patients.	12 tablets per diem. Total 4 g.	20 c.cm. every 8 hours. Total 1·5 g.
Cases of moderate severity.	6 tablets per diem.	20 c.cm. every 8 hours.
Mild cases.	" "	10 or 20 c.cm. twice daily.

No other treatment has been given beyond a daily vaginal douche, the application of Antiphlogistine to the abdomen when there is tenderness, and sedative drugs as required. The general care of the cases has remained the same for the past two years.

TABLE II

	Cases.
1. Infection limited to uterus, vagina, and perineum	17
2. Infection involving pelvic cellular tissues, Fallopian tubes, pelvic peritoneum, or veins ..	3
3. Infection of birth canal associated with generalised peritonitis (in one other case peritonitis was suspected)	1*
4. Infection of birth canal associated with septicæmia (hæmolytic streptococci in blood culture) ..	6

* With positive blood culture.

ANALYSIS OF RESULTS OF TREATMENT

None of the patients has died. In one patient, admitted on the 25th day with an abdomino-pelvic mass, the treatment appeared to have no beneficial effect, but the inflammatory mass slowly resolved. Eleven others (42 per cent.) were mild cases which would almost certainly have recovered without any special treatment. The rapid and complete recovery of the remaining 14, more severe, cases makes it seem probable that the treatment assisted recovery. In at least three cases it was more than probable. Six of these 14 cases (23 per cent. of the whole series) gave a positive blood culture (hæmolytic streptococci) on admission; in one case the signs and symptoms pointed definitely to a generalised peritonitis, while in one other there was reason to suspect the beginning of that condition.

The clinical details of the two most severe cases were as follows:—

Mrs. F. 1-para; admitted on fifth day of puerperium, with temperature of 103° F. and pulse of 140 rising to 150, signs and symptoms of generalised peritonitis, and a positive blood culture. (This combination has almost invariably in our experience proved fatal.) After three days' treatment her temperature and pulse-rate became persistently normal, and all signs of peritonitis disappeared.

Mrs. S. 1-para; developed fever to 105° F. on third day, and on admission was very gravely ill. Blood culture gave a growth of more than 5000 colonies per c.cm. on the first two days, and over 3000 on the third day, most, if not all, of the colonies being hæmolytic streptococci although there were also some anaerobic streptococci present in fluid cultures made at the same time. On the fourth day of treatment a blood culture was sterile and the temperature fell to normal, remaining so except for one slight rise (to 100° F.) on the following day. She was discharged in good health 21 days after admission to hospital and has suffered no relapse (see Figure for temperature and details of treatment).

In view of the fact that blood cultures yielding such a large number of hæmolytic streptococci (equivalent

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[*] A further report to the Therapeutic Trials Committee of the Medical Research Council. A preliminary report by the same workers on the treatment with prontosil of human puerperal infections, and of experimental infections in mice, appeared in THE LANCET of June 6th, 1936 (p. 1279).

[†] Prontosil soluble and Prontosil were submitted to the Therapeutic Trials Committee by Messrs. Bayer Products Ltd., who now call the latter product "red Prontosil," in contradistinction to the colourless compound, *p*-aminobenzenesulphonamide.

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to something like 30 millions in the whole blood stream) have never previously been observed by us except in the terminal stages of a fatal infection, this patient's prompt recovery was astonishing.

TOXIC EFFECTS

These have been much the same as in the previous series—i.e., a very mild degree of urinary tract irritation, as shown by the presence in the urine of epithelial cells and occasionally a few red blood-cells; the cells have disappeared from the urine on cessation of treatment. There have been no further cases of sulphæmoglobinæmia, possibly owing to the fact that magnesium sulphate is not now given to any patient under treatment by prontosil.

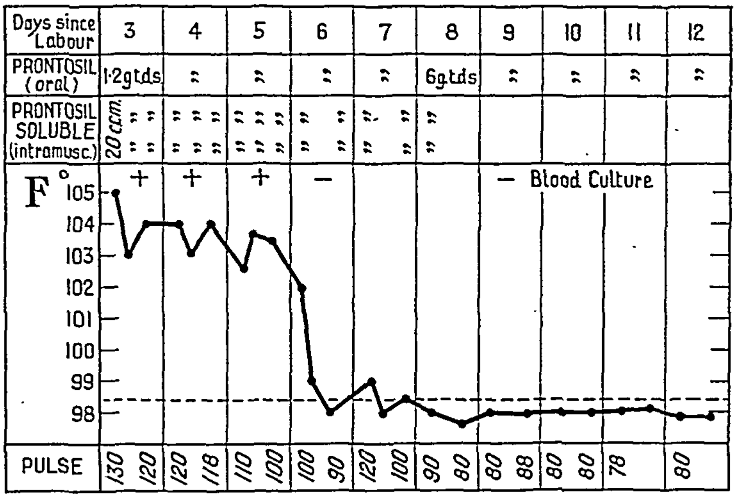

Chart showing a typical scheme of dosage in a case of puerperal septicæmia.

Commentary upon the Whole Series of Sixty-four Cases

Table III. shows our experience of this series of cases, in contrast with all the similarly infected cases which had been admitted to the Isolation Block during the previous five years. The following points are worthy of notice:

(*a*) There has been a sudden and remarkable fall in the death-rate for all cases admitted with an infection by the hæmolytic streptococcus. The significance of this is discussed below.

(*b*) While there has been also a manifest falling-off in the deaths from peritonitis, it should not be assumed that the incidence of that condition has shown a similar decline. The figures given for 1931–35 refer to proven peritonitis—i.e., proven by the finding of streptococcal exudates in the peritoneal cavity, either at laparotomy or at autopsy. The one death during 1936 was also in a case proven by post-mortem examination. Since neither laparotomy nor post-mortem examination was performed on any of the other cases presenting the clinical features of generalised or generalising peritonitis, it is impossible to say precisely in how many of the 64 cases that condition was present when the treatment by prontosil was begun. Members of the honorary staff of the hospital who have been observing puerperal infections for a number of years were of opinion that general peritonitis was almost certainly present in 4 patients in addition to the one who died, while in 6 more there was reason to think that spread of infection to the abdominal peritoneum was probably beginning. (In several other cases the clinical signs were only suspicious.) Previous experience has taught us that at least half of the "probable" cases ordinarily develop into undoubted cases of generalised peritoneal infection. On this assumption, we have to conclude that not less than 8 cases (12 per cent. of those treated by prontosil)—and possibly 11 cases (17 per cent. of those treated)—were likely to have had a generalising spread of infection to the abdominal peritoneum, and that, in all except one case, this process was checked by the natural defensive mechanisms powerfully assisted by vigorous treatment with prontosil. If that conclusion is erroneous, we are driven to the alternative judgment that the occurrence of generalising peritonitis, which had continued steadily throughout the previous five years, stopped abruptly at the end of 1935, an alternative which seems to us extremely improbable.

(*c*) The well-known tendency of puerperal infections by the hæmolytic streptococcus to spread to the cellular tissues of the parametrium and the pelvic walls, has been conspicuously absent in these 64 prontosil-treated cases. No case has developed a palpable pelvic or abdomino-pelvic inflammatory mass after treatment began. By contrast with this, it is instructive to note that among the 20 cases which were considered too mild on admission to need treatment with prontosil, four subsequently developed a spread of infection to the pelvic cellular tissues, with irregular fluctuations of temperature, and the formation of a palpable inflammatory mass. These four cases had to be kept in hospital for 30, 40, 60, and 65 days respectively. The limitation of the streptococcal invasion in the prontosil-treated cases has also been reflected in the temperature charts, and by the duration of stay in hospital. The great majority of cases treated with prontosil have shown a prompt fall of temperature within 24–72 hours from the beginning of treatment, and their temperatures thereafter have remained normal, with none of

TABLE III

Death-rate for all cases infected by Hæmolytic Streptococci (Queen Charlotte's Hospital)

—	Number of cases (all grades).	Deaths.	Deaths from peritonitis.*	Blood-positive cases (hæm. strept.) without general peritonitis, and death-rates.
1931	98	31 = 31·6 %	23	—
1932	90	19 = 21 %	16	1 (died = 100 %)
1933	97	20 = 20·6 %	14	9 (6 deaths = 66 %)
1934	120	20 = 16·6 %	16	15 (4 deaths = 27 %)
1935	90	22 = 24·4 %	15	13 (7 deaths = 53·8 %)
1936 Jan.–Aug.	64 (treated by prontosil)†	3 = 4·7 %	1	8 (2 deaths = 25 %)

* Hæmolytic streptococcus cases only.

† In addition to these 64 cases there were 20 cases also infected by hæmolytic streptococci in the early part of the year, which were considered too mild to need special treatment—and also one recent case which was treated by *p*-amino- [illegible] None of these 21 cases had general [illegible] and none of them died *The death-* [illegible] *-ected by hæmolytic streptococci during 1936 (Jan.–Aug.) was 3·5 per cent.*

the secondary rises and irregular fluctuations which so often in the past have heralded the extension of infection to the pelvic tissues. In no case has it been necessary to keep a patient in hospital for many weeks, waiting for the slow resolution of one of these inflammatory masses. Data based on the duration of stay in hospital are notoriously open to criticism, but it is perhaps worthy of record that the average stay in hospital for the 61 prontosil-treated patients who recovered was 18 days, while that of the 61 consecutive non-fatal cases immediately before the introduction of prontosil was 31·3 days.

(*d*) There has been no occasion to readmit any of these patients to the wards, and all of them, on their follow-up visits to the hospital weeks or months after discharge, have appeared to be in very good health.

(*e*) Analysis of the cases giving a positive blood culture (hæmolytic streptococci) is also instructive. No less than 12 of the 64 cases (19 per cent.) were of this kind. Of these 12, 9 recovered (75 per cent.). Of the three who died, one had a generalised peritonitis on admission and almost certainly for several days before. Of the remaining two cases, one was found at autopsy to have extensive thrombophlebitis; in the other, an autopsy was not obtained, but there is very little doubt that a similar condition was responsible for death. Among the remaining nine cases who recovered, there were three in whom it appeared very probable that infection of the abdominal peritoneum had already commenced on admission.

DISCUSSION OF CLINICAL RESULTS

The death-rates shown in Table III., with the considerations put forward above, make it difficult to resist the conclusion that the remarkable improvement in the clinical results has been chiefly due to the introduction of treatment with prontosil. That conclusion is strongly supported by the analogous and unmistakable curative effects obtained in experimental animals. There are, however, other possible, albeit improbable, explanations of our clinical results which ought to be kept in mind. We might have been deceived by the purely fortuitous admission of an unusually mild group of cases; or, on the other hand, by a spontaneous and rather sudden diminution of "virulence" (killing power) of the hæmolytic streptococcus for the human subject. In view of the importance of arriving at a correct evaluation of the effect of prontosil, we have been at some pains to examine both these possibilities.

First, is there any evidence that, by the mysterious operations of chance, the 64 cases treated with prontosil have included an unusually large proportion of mild cases and a correspondingly small proportion of severe ones? This question is to some extent capable of investigation, for it is well known that the great majority of deaths in puerperal fever due to infection by the hæmolytic streptococcus occur in two groups of cases—viz., the group of "generalised peritonitis" and that of "septicæmia" (cases with hæmolytic streptococci actually detected in the blood stream).

An analysis of the 64 cases treated with prontosil and of all the similar infections in recent years is shown in Table IV. There has clearly been no great reduction in the incidence of septicæmia (and it should be borne in mind that in the prontosil-treated series there were 3 cases admitted with an unusually heavy blood-stream infection). The true incidence of "general peritonitis" is more difficult to assess for the reasons explained above, but even if we make some allowance for mistaken diagnosis in a few of the cases, it seems unlikely that there has been such a change as to account for the very large reduction in the death-rate.

A careful review of our prontosil-treated cases seems, therefore, to justify the view that their infections as a whole were of approximately the usual severity. There remains the second question: has the "virulence" of the streptococcus for man diminished during the present year? This, of course, is very difficult to answer with assurance, but there are undoubtedly certain data which suggest that a change of this kind may be taking place—just as it has already taken place in scarlet fever.

Let us first consider our own experience at Queen Charlotte's Hospital. It was explained in our first paper on this subject ‡ that at the beginning of the year we did not treat every case of infection by hæmolytic streptococci with prontosil, but only the more severe cases. Actually, 20 cases were excluded on this account or for some other reason—e.g., suspicion of nephritis, &c. And to these 20 cases we may add one mild case recently treated by *p*-aminobenzenesulphonamide instead of prontosil. If these 21 cases (all non-fatal infections, localised in the pelvis) are added to the 64 analysed in Table IV., the incidence of septicæmia changes from 18·7 to 14·1 per cent., and that of general peritonitis from 12·5 to 9·4, or from 17·2 to 13 per cent., according to whether we consider that there were 8 or 11 cases in this category.

TABLE IV

Incidence of Peritonitis and of Septicæmia among cases infected by Hæmolytic Streptococci. (Queen Charlotte's Hospital)

—	Death-rate of all the cases included.	Cases.	Peritonitis (generalised or generalising).	Septicæmia (hæmolytic streptococci in blood culture).		
				Total.	(*a*) Associated (*b*) not associated with peritonitis.	
					(*a*)	(*b*)
1934	16·6 %	120	18 = 15 %	26 = 21·6 %	11 = 9·2 %	15 = 12·5 %
1935	24·4 %	90	16 = 17·7 %	18 = 20 %	5 = 5·5 %	13 = 14·4 %
1936 Jan.–Aug.*	4·7 %	64	†? 8 = 12·5 % ? 11 = 17·2 %	12 = 18·7 %	1 certainly 3 almost certainly } = 6·25 %	8 = 12·5 %

* Only cases treated by prontosil.
† See subsection (*b*) under Commentary upon the 64 cases.

A more striking reduction in the number of severe cases is shown by a study of the records of puerperal fever cases admitted to the North Western Fever Hospital, London. We are greatly indebted to the medical officer of health, London County Council, and to Mr. James Wyatt for permission to quote the figures for 1935 and the first half of 1936 before their official publication. These records show:

(*a*) That the fatality-rate for all cases admitted with hæmolytic streptococcal infections, which in 1933 was actually a little higher (22 per cent.) than ours at Queen Charlotte's Hospital, has progressively declined—to 11 per cent. in 1934, to 7·8 per cent. in 1935, and to 5·26 per cent. during the first half of 1936. (No prontosil was used during these periods.)

(*b*) That the incidence of cases of "general peritonitis" during these years 1934–35 and 1936 has also been declining—*e.g.*, it was 7·4 per cent. in 1934, 4·7 per cent. in 1935, and 2·6 per cent. in 1936.

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‡ Colebrook, L., Kenny, M., and the members of the Honorary Staff of Queen Charlotte's Hospital, THE LANCET, 1936, i., 1279.

(*c*) That the incidence of "septicæmia without peritonitis," although it has not actually declined, has been always lower than that at Queen Charlotte's Hospital during these three years—*e.g.*, in 1934 it was only 5 per cent., in 1935 it was 6·4 per cent., and in the first half of 1936 it was 8 per cent.

It seems evident, therefore, that, whatever the reason may be, the average severity of the cases admitted to the London County Council hospital is decreasing, and the figures seem also to indicate that it is considerably less than that of the cases admitted to Queen Charlotte's Hospital.

Apart from this question of the difference in severity of the two groups of cases, the falling death-rate in the London County Council experience might appear to throw doubt on our conclusion that prontosil has been largely responsible for the striking improvement in the clinical results at Queen Charlotte's Hospital. It should be pointed out, however, that, whereas at the London County Council hospital the fall in death-rate has been progressive over a number of years without prontosil treatment, at Queen Charlotte's Hospital it was as high as 24 per cent. even in 1935, and has fallen to 4·7 per cent. only since the beginning of 1936 when prontosil was first used. While, therefore, we are prepared to admit that a natural decline in the severity of the disease may well have played a part in this change in fatality,§ we feel that our present high opinion of the value of prontosil and related compounds is probably justified, particularly in view of the impressive results of animal experiments and the clinical data summarised in Table IV. We find it difficult to resist the conclusion that the treatment has profoundly modified the course of the infection in 20–30 of the more severe cases in our series of 64 patients, and consider, therefore, that its further trial in hæmolytic streptococcal infections is highly desirable.

Problems for the Future

It should be clearly realised that we are only at the beginning of the scientific and clinical investigation of these new chemotherapeutic agents. Many important questions are at present quite unsettled. We do not know with any certainty whether it is necessary to use such large doses as have been employed in our cases, although clinical experience, unguided by blood tests, has seemed to point that way. We do not know what is the relative value of oral and parenteral administration, nor whether oral administration alone might have been adequate. If parenteral administration appears to be necessary, could we eliminate the unpleasantness of the frequent large intramuscular injections, by one or at most two injections of a stronger suspension of prontosil—thus constituting a depôt from which absorption might proceed slowly for days or weeks? In the mouse this plan has worked very successfully, but we have not yet tried it in human beings. The suspension appears to be remarkably non-irritant in mice.

Experiment.—Ten mice were injected with about 23,000 virulent streptococci (100 or more M.L.D. of the Richards strain) into the peritoneum. Half of them received no subsequent treatment and all were dead within 30 hours. The other 5 were given 7·5 mg. of prontosil soluble subcutaneously three hours after the infecting dose of streptococci, and five hours later 50 mg. of prontosil suspended in gum arabic also subcutaneously. Four of these five animals have remained quite well for four weeks and their urine has had an orange colour during all that time. The fifth died of a hæmolytic streptococcus infection on the 24th day.

How far the chemotherapeutic effect of these drugs is limited to infections by the *hæmolytic* group of streptococci is also not known with any certainty. We have used them in only a few cases of infection by other streptococcal species and always, so far, without success. Pending further investigation in the laboratory, there would seem to be no scientific basis for their employment in non-hæmolytic streptococcal infections.

Another problem of fundamental importance, which we are now investigating, is that of the relative efficacies of prontosil and *p*-aminobenzenesulphonamide. Finally, we have yet to determine how far these new remedies will lend themselves to the *prophylactic* control of infections by hæmolytic streptococci. We have always kept before us a glimmer of hope that some day we might have an effective chemotherapeutic or immunising agent which would render any woman temporarily immune from danger of infection if her confinement had been conducted in circumstances which made such infection likely. The work of the last few years has taught us that very many women are delivered in such circumstances. There are those delivered in private houses where there is, or has recently been, somebody with an "open" lesion infected by hæmolytic streptococci—*e.g.*, tonsillitis, scarlet fever, otitis media (or associated long-standing ear discharges), whitlow, an infected injury, impetigo, erysipelas. There are those confined at home or in institutions by a healthy "carrier" or by somebody who has recently suffered from a respiratory tract infection, perhaps only a "cold." And there are those exposed to the manifold risks of infection in institutions where there is, or has been, puerperal sepsis. Experiments with mice, which will be reported later, and also observations of the increased killing power of the blood following the administration of *p*-aminobenzenesulphonamide, seem to offer good promise of success in the preventive control of these infections, but we think it would be a mistake to urge the widespread clinical application of the prophylactic use of the drugs until they have been more fully explored in the laboratory. While there are already indications that the sulphonamide is likely to be more useful than the original prontosil for the purpose, we have had warnings that its toxicity for man is by no means negligible. The question of this toxicity is being further examined.

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§ Further evidence of a reduced average severity of puerperal fever infections by the hæmolytic streptococcus has recently come to us from Sheffield by the kindness of Dr. C. G. Paine, bacteriologist to the Jessop Hospital. Dr. Paine has analysed the cases in the same way as we have done for the Queen Charlotte's Hospital and the L.C.C. cases. His records show that the death-rate for cases infected by hæmolytic streptococci—which in 1935 was approximately the same as ours at Queen Charlotte's Hospital—has been considerably lower in the first half of 1936: and that this reduction has been associated with the admission of a smaller proportion of cases of general peritonitis and of septicæmia without peritonitis.

QUEEN MARY'S HOSPITAL FOR THE EAST END.—The Duke of Gloucester presided at a Mansion House dinner given for the funds of this hospital on Nov. 17th. A new operating section which will cost £15,000 is needed, and there is a considerable overdraft at the bank which is causing anxiety. During the evening £9000 was raised.

ST. MARY'S, PADDINGTON.—On Nov. 18th the Duchess of York opened the first section of the new nurses' home at this hospital, and unveiled a tablet to the anonymous donor whose personal gifts have amounted to £107,000, and made possible the erection of the home and of a paying patients' wing. The new building makes provision for 21 sisters, 145 nurses, and 40 maids.

THE MODE OF ACTION OF *p*-AMINOBENZENESULPHONAMIDE AND PRONTOSIL IN HÆMOLYTIC STREPTOCOCCAL INFECTIONS

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No satisfactory explanation has yet been given for the unmistakable effect of Prontosil[1] and of Prontosil soluble[1] in controlling infections by hæmolytic streptococci in the mouse, and for the apparently analogous curative effects reported in man (Colebrook and Kenny, 1936; Klee and Römer, 1935; Schreus, 1935).

As originally pointed out by Domagk (1935) these dye substances are, at the most, feebly antagonistic to the growth of hæmolytic streptococci in vitro, and Colebrook and Kenny (1936) found that these organisms were able to multiply considerably in prontosil soluble, diluted 50-fold in human serum. These authors also showed that the serum of animals or human beings undergoing treatment by these substances had a definite, although slight, growth-retarding effect on a strain of hæmolytic streptococcus which was very susceptible to the curative action of the drug in mice. This growth-retarding effect was, at that time, judged to be too small to account for the therapeutic effects in infected animals and man.

The present paper deals with a number of new facts which have recently come to light. Tréfouel, Nitti, and Bovet (1935) showed that *p*-aminobenzenesulphonamide[1 2] was as effective as prontosil in controlling streptococcal infection in the mouse, and they put forward the suggestion that the former substance was probably formed in vivo after administration of prontosil.

BACTERIOSTATIC EFFECT OF THE SULPHONAMIDE IN CULTURE MEDIUM

Working with this hypothesis in mind, we first investigated the effect of the sulphonamide on the growth of hæmolytic streptococci in culture medium. We used a broth prepared by Wright's method (1933) so as to exclude, as far as possible, the presence of copper (O'Meara and Macsween, 1936). This broth could be relied upon to grow the cocci freely in 16 hours from a very small inoculum—viz., 3 to 5 cocci (as judged by "shake" culture counts in melted blood-agar). We found that the addition of 1 in 10,000 of the sulphonamide sufficed to delay the growth of 30 to 50 cocci for 2 to 5 days. A concentrated solution of 1 in 100 of the sulphonamide in broth did not, however, inhibit growth with an inoculum of 0·1 c.cm. of undiluted culture, containing three hundred million organisms, although it inhibited the growth of one-tenth of this number of cocci.

There was no inhibitory effect against a small inoculum with prontosil or prontosil soluble, but we found that by reduction with magnesium powder in a partial vacuum a substance was produced from the dyes which had an inhibitory effect comparable to that of the sulphonamide.

BACTERICIDAL EFFECT IN BLOOD (THE SULPHONAMIDE ADDED IN VITRO)

The next experiments were with defibrinated human blood, or serum, after the addition of the sulphonamide in vitro. Using the "slide cell" method (Wright, Colebrook, and Storer, 1923), it was found that blood containing 1 in 18,000 of the sulphonamide killed a considerable number of cocci.

In the first experiment, varying dilutions of streptococcal culture ("Oakley") were added to defibrinated human blood with and without the sulphonamide, and the mixtures were incubated in slide cells. Table I. shows the number of colonies which developed.

TABLE I

Norman Human Blood to which the Sulphonamide was added in vitro ("slide cell" technique)

Number of colonies developing in 60 c.mm. of—	Period of incubation.	Number of streptococci implanted‡ (5 c.mm.)—		
		35	350	3500
Control blood.	10 hrs.	7	21	100
	24 „	Inf.	Inf.	Inf.
Blood + 1 in 13,000 of the sulphonamide.	2 days.	0*	0*	0*
Blood + 1 in 18,000 of the sulphonamide.	2 „	0*	0*	0†

In the cells where the growth is recorded as "Infinite" there was complete hæmolysis of the blood.

* These cells were dismantled on the second day and their contents explanted into melted blood-agar in order to determine whether the streptococci were really dead or only dormant. They proved to be sterile in every case.

† This cell showed no growth on the second day, but when the contents were explanted in melted blood-agar four colonies were seen.

‡ The number of streptococci was determined by separate counts in melted blood-agar.

This experiment has been repeated many times with different bloods and different strains of hæmolytic streptococci (mouse-virulent and non-virulent), and always with the same result. When prontosil soluble was substituted for the sulphonamide, there was no bactericidal effect.

When the mixtures containing the sulphonamide were incubated on an agitator (Todd, 1927), and samples taken at intervals planted in melted blood-agar, it was found that the destruction of the streptococci occurred very slowly (6 to 24 hours), and was frequently preceded by a period in which there was active multiplication of the cocci (up to 6 hours).

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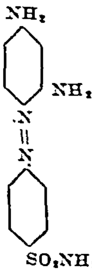
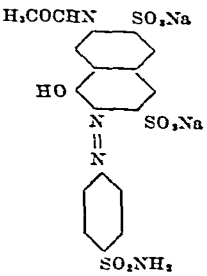
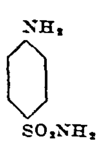
[1]



Prontosil.



Prontosil soluble.



p-Aminobenzenesulphonamide.

The manufacturers have recently changed the name of the first substance. It is now called "Red Prontosil"—this is the substance referred to as *prontosil* throughout the paper.

[2] Fourneau, Tréfouel, Nitti, and Bovet (1936) showed that this substance had an inhibitory effect on the growth of moulds in vitro.

Thus, 1 in 12,000 of the sulphonamide in 1 c.cm. of human blood destroyed the majority of 15,000 streptococci in 6 hours, and completely destroyed them in 24 hours. In another experiment, 1 in 25,000 of the sulphonamide *allowed the streptococci to multiply from 1100 to* 60,000 in 2 hours, but the number diminished to 8000 in 6 hours. The streptococci in the controls multiplied to very large numbers.

The effect of the sulphonamide in serum is similar to that in blood. One hundred and forty-four streptococci *multiplied for 2 hours in serum containing 1 in 10,000 of* the sulphonamide, but they were completely destroyed in 48 hours. In other experiments, when the cocci were not completely destroyed the initial increase, and subse*quent diminution of the number, were followed by a* secondary phase of multiplication and diminution.

In one experiment, bactericidal tests were carried out in "slide cells" with defibrinated human blood from which 80 per cent. of the leucocytes had been *removed* by passing it through cotton-wool (Fleming, 1926), and with the same blood containing its normal complement of leucocytes. The addition of the sulphonamide to these *two samples (1 in 10,000) resulted in almost as much* killing of the implanted streptococci in the "de-leucocyted" blood as in the control blood. In another experiment, when the mixtures were incubated in rotating tubes, there was not such a great destruction of the cocci in the "de-leucocyted" blood as in the normal blood. *It seems probable* that the effect of the leucocytes is at the most to enhance the killing of the cocci by the sulphonamide.

When the blood of rabbits, guinea-pigs, or mice was used, such striking results were not obtained; the addition of 1 part in 10,000 of the sulphonamide to 0·5 c.cm. of defibrinated rabbit blood incubated in slowly rotating tubes [3] destroyed 3 cocci, and there was considerable retardation of growth with 30 cocci.

The greater effectiveness of the sulphonamide in human blood would seem to depend on the presence of other factors in the untreated blood of man which destroy the streptococci in the early stages of incubation. Inocula of 3 streptococci ("Richards") grown in mouse and in rabbit blood, placed in tubes and rotated once a minute, multiplied to 36,000 and 34,000 respectively in 6 hours, and subsequently increased to large numbers; in a specimen of human blood, under similar conditions, an inoculum of 3 cocci was completely destroyed and an inoculum of 30,000 was reduced to 6000. With the large inoculum the *cocci subsequently multiplied to large numbers.* Specimens of human blood from different individuals showed great variation. If serum, instead of blood, was used to grow the cocci, there was no initial phase of destruction, but growth in the human serum was a little slower than in the rabbit serum.

CHANGES IN BACTERICIDAL AND BACTERIOSTATIC POWER OF BLOOD AND SERUM INDUCED IN ANIMALS

Changes in the bactericidal and bacteriostatic power of blood and serum were induced by the administration of the sulphonamide and of prontosil to animals.

The blood or serum, taken from rabbits, mice, and monkeys, after the administration of the sulphonamide by mouth destroys small inocula of streptococci, although they grow freely in the normal blood or serum.

Rabbits weighing 1·6 to 1·8 kg. received 4 g. of the sulphonamide by mouth. Samples of defibrinated blood were taken at intervals from half an hour to 48 hours after treatment. The samples taken half an hour to 24 hours after treatment completely destroyed 3 cocci ("Richards") incubated with 0·5 c.cm. of blood for 48 hours in rotating tubes. A similar number of cocci *grow freely in the blood taken before treatment.* Twenty-six cocci grew in the blood from the treated animals, but much more slowly than in the normal blood.

The blood of mice receiving 50 mg. of the sulphonamide by mouth 2 hours previously showed a similar effect—3 cocci were killed, but 30 cocci grew slowly.

The serum of treated rabbits gave a similar result to that of the blood.

Monkeys (rhesus) weighing 2 to 2·2 kg. were given 4 g. of the sulphonamide *by mouth,* and samples of defibrinated blood, taken at intervals, were incubated with varying dilutions of streptococcal culture ("Richards") in tubes rotating once a minute.

There was a considerable increase in the bactericidal power of blood in the monkeys. One of these experiments is shown in Table II. (A).

TABLE II

(A) *Blood from Monkey treated with the Sulphonamide* (rotating tube technique)

—	Approx. number of streptococci implanted in 0·5 c.cm. of blood.	Period of incubation— 16 hrs.	48 hrs.
Normal blood.	3	H +	..
	30	H +	..
Blood taken 3½ hrs. after treatment.	3,000	− 0	− 0
	30,000	− +	− 0
	300,000	− +	− +*
	3,000,000	H +	..
Blood taken 24 hrs. after treatment.	300	− 0	− 0
	3,000	− +	− 0
	30,000	− +	H +
	300,000	H +	..
Blood taken 48 hrs. after treatment.	3	− 0	− 0
	30	− +	H +
	300	H +	..
(B) *Blood from Monkey treated with Prontosil* (rotating tube technique)			
Normal blood.	2	H +	..
	20	H +	..
Blood taken 4 hrs. after treatment.	200	− 0	− 0
	2,000	− 0	− 0
	20,000	− +	H +
	200,000	H +	..
Blood taken 24 hrs. after treatment.	2	− 0	− 0
	20	− +	H +
Blood taken 48 hrs. after treatment.	2	H +	..
	20	H +	..

H + indicates hæmolysis of the blood and growth of streptococci on subculture in broth. − + indicates no hæmolysis, but growth of streptococci on subculture. −0 indicates no hæmolysis, and no growth of streptococci on subculture.

* At the end of 72 hours' incubation, counts on blood-agar plates showed the presence of 100 cocci.

Table II. (B) shows a similar experiment where the monkey received 4 g. of prontosil.

CHANGES IN BACTERICIDAL POWER OF BLOOD AND SERUM INDUCED IN MAN

Changes in the bactericidal power of the blood and serum of (*a*) infected, and (*b*) uninfected, human beings were observed following the administration of prontosil and of the sulphonamide.

(*a*) *Infected patients.*—Treatment with large doses of prontosil and prontosil solubile produced a slight increase in the bactericidal and bacteriostatic power of the blood of two patients tested against their infecting strains with the slide cell technique. There was also a slight increase in the bacteriostatic power of the serum as previously reported. Another patient had three doses of 0·6 g. of *prontosil and two doses* of 20 c.cm. of prontosil soluble per day for three days. It was only on the third day, 5 hours after a dose of prontosil, that there was a considerable bactericidal action (experiment by Dr. E. W. Hoare). (Table III.).

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[3] Clockwork motors used for turning articles for display in shop windows are convenient for rotating these tubes.

TABLE III

Blood from a Case of Puerperal Fever (Mrs. G) treated with Prontosil (rotating tube technique)

—		Number of cocci implanted in 150 c.mm. of blood.	Number of cocci grown in 24 hrs.	
			Control blood.	Patient's blood.
First day of treatment	before prontosil	25	26×10^6	20×10^6
	1 hr. after prontosil	25	26×10^6	15×10^6
Second day of treatment, 3 hrs. after prontosil.		35	42×10^6	4×10^4
Third day of treatment, 5 hrs. after prontosil		40	36×10^6	0
		850	30×10^6	0
		4,500	30×10^6	8×10^3

Treatment with the sulphonamide has produced a very remarkable increase in the bactericidal power of the blood and serum of three consecutive patients. The "slide cell" technique shows these changes in the case of blood dramatically, since the growing colonies with their surrounding zones of hæmolysis are readily visible. The bactericidal power can also be shown by incubating the mixtures of blood and streptococci in rotating tubules and counting the number of organisms at intervals.

The records of one case whose blood was tested in "slide cells" are shown in Table IV.

The blood of the two other patients investigated before, and at intervals after, the administration of the sulphonamide gave similar results to those shown in Table IV., although the number of streptococci killed was not quite so large.

The serum, as opposed to the whole blood, of patients under treatment by the sulphonamide has not yet been fully investigated, but there are sufficient data to show that it acquires a considerably enhanced power of killing streptococci. Thus, when 144 cocci were implanted into the serum of Mrs. E (see Table IV.) taken before treatment by the sulphonamide, they multiplied in 24 hours to 16 millions. The same number of streptococci, implanted in 200 c.mm. of her serum taken 3 hours after the third dose, were all killed. Two days later, 710 cocci implanted into 100 c.mm. of her serum taken 5 hours after the seventh dose of the sulphonamide also died.

(*b*) *Normal persons.*—Two normal persons[4] were given one dose of 1·5 g. of the sulphonamide by mouth, and blood samples were taken, in each case, before and after the treatment and tested in slide cells. The samples taken at intervals after the treatment showed a retardation of growth of several hours when compared with the controls; small numbers of organisms were completely destroyed, but the destruction was not so great as was shown by the blood of Mrs. E (Table IV.). The samples from one of the normal persons were also tested in rotating tubes. Those taken 2 hours after the sulphonamide was given showed complete destruction of 7200 cocci in 100 c.mm. of blood; whereas before treatment 28 cocci multiplied to very large numbers in 24 hours.

DISCUSSION

The blood or serum of human beings and monkeys taken after the administration of *p*-aminobenzenesulphonamide or prontosil has a bacteriostatic and bactericidal action against hæmolytic streptococci greatly in excess of anything encountered in normal blood or serum. A powerful action persisted in the blood of puerperal fever patients as long as the sulphonamide was given, and it seems likely that this may be the decisive factor in the therapeutic activity of this group of substances.

TABLE IV

Blood from a Case of Puerperal Fever (Mrs. E) treated with the Sulphonamide (slide cell technique)

FIRST TEST, SEPT. 3RD, 1936 (ELEVENTH DAY OF INFECTION)

Number of colonies developing in 60 c.mm. of—	Period of incubation.	Approx. number of streptococci ("Richards") implanted—			
		14	43	225	—
Normal human blood (L. C.).	8 hrs.	10	38	100–150	—
	24 „	Inf.	Inf.	Inf.	—
Patient's blood before sulphonamide.	8 „	8	31	100–150	—
	24 „	Inf.	Inf.	Inf.	—

SECOND TEST, SEPT. 4TH (TWELFTH DAY OF INFECTION)

Number of colonies developing in 60 c.mm. of—	Period of incubation.	Approx. number of streptococci ("Richards") implanted—			
		7	41	200	—
Normal human blood (L. C.).	9 hrs.	5	33	80	—
	24 „	Inf.	Inf.	Inf.	—
Patient's blood 3 hrs. after third dose of the sulphonamide (1·5 g.).	9 „	0	0	0	—
	3 days.	0	0	0	—

THIRD TEST, SEPT. 7TH (FIFTEENTH DAY OF INFECTION)

Number of colonies developing in 60 c.mm. of—	Period of incubation.	Approx. number of streptococci ("Richards") implanted—			
		13	93	425	4250
Normal human blood (L. C.).	9 hrs.	9	54	100–150	>200
	24 „	Inf.	Inf.	Inf.	Inf.
Patient's blood 10 hrs. after twelfth dose of the sulphonamide (1·5 g.).	9 „	0	0	0	0
	3 days.	0	0	0	0

In all the cells where the growth is recorded as "Infinite" there was complete hæmolysis of the blood.

The cells in which the growth is recorded as 0 were dismantled on the third day and shown to be sterile by explanting into melted blood-agar.

Blood or serum to which the sulphonamide was added in vitro also showed this bacteriostatic and bactericidal action; but there was no such effect with prontosil or prontosil soluble. Our colleague, Dr. Fuller, whose results are to be published shortly, has shown that the sulphonamide is produced from prontosil by reduction of the dye in the body; it seems probable therefore that the bactericidal action which develops in the blood of prontosil-treated animals or patients is due to the presence of the sulphonamide.

The bactericidal power of the blood taken from mice and rabbits treated with the sulphonamide is very small compared with that of the blood taken from treated men or monkeys (although, in the case of man, the dose per kg. is only one-hundredth of that used in the mouse and rabbit). This is due to the fact that streptococci do not grow so readily

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[4] One of these normal persons (a resident medical officer of the hospital) experienced considerable malaise and some vomiting several hours after the drug was taken. A little nausea persisted during the next day. Another person also had slight malaise, but no nausea. A third normal person had no symptoms whatever. Ten patients have been treated with the sulphonamide: a maximum quantity of 4·5 g. being given per day, in doses three times a day. None of these patients experienced any symptoms after taking the drug.

A CASE OF
ENLARGED PROSTATE ASSOCIATED WITH MAMMARY CARCINOMA

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(From the Research Institute of the Royal Cancer Hospital (Free), London)

TO-DAY it is recognised that the structure and functions of the mamma and prostate are largely controlled by the so-called sex hormones. The preparation of some of these hormones as pure crystalline compounds has facilitated experimentation on animals under exact conditions. The purpose of this paper is to set out some of the results of experimental work in this field, and to consider whether they may be applicable in any way to human pathology as illustrated by a particular case.

EFFECTS OF ŒSTRIN* ON THE MAMMA

Pioneer work by Loeb and Lathrop, who used inbred strains of mice in which mammary cancer appeared spontaneously in a large proportion of the females, showed that removal of the ovaries before the age of 5 months almost entirely prevented the subsequent appearance of cancer. Cori later found that in a strain of mice highly susceptible to spontaneous cancer of the breast the ultimate incidence of cancer could be reduced to nil by spaying the mice before they were 22 days' old. W. S. Murray confirmed this observation and made additional experiments. Using a strain of mice in which cancer of the breast occurs with great frequency among the females, he castrated a number of the males and grafted into them the ovaries of sisters. The eventual incidence of mammary cancer in these males was 7 per cent., whereas mammary cancer in untreated male mice of any strain is very rare. de Jongh and Korteweg also have caused mammary cancer in male mice by this interesting method; in their experiments, of 63 males bearing transplanted ovaries, mammary cancer has developed in 17 (Korteweg).

Goormaghtigh and Amerlinck carried the matter a stage further when they demonstrated that cystic mastopathy and even mammary cancer (one case) might be induced in mice by repeated subcutaneous injections of liquor folliculi derived from the sow's ovary. In 1929 Doisy, Veler, and Thayer and also Butenandt were able to isolate œstrone in a crystalline form from the urine of pregnant women; and using this pure compound and compounds closely allied to it, many experimenters have brought about in mice the mammary changes described by Goormaghtigh and Amerlinck. Lacassagne was the first to prove that mammary cancer could be caused in male mice by subjecting them to repeated dosage with œstrone in a pure form, and his results have been confirmed by others (Burrows,[a] Bonser, Gardner et al.). The foregoing experiments have shown beyond a doubt (1) that œstrin can cause cancer of the breast in male mice which otherwise would remain free from this kind of neoplasia, and (2) that removal of the chief source of œstrin—namely, the ovary—in early life will prevent the occurrence of mammary cancer in female mice that otherwise would be affected with this lesion.

EFFECTS OF ŒSTRIN ON THE PROSTATE

Lacassagne found that œstrin, when given to mice repeatedly by subcutaneous injection, caused a metaplasia in the so-called "anterior lobe of the prostate," and de Jongh observed in castrated male mice treated by daily subcutaneous injections of œstrin for 20 days, a stratified epithelium replacing columnar at the orifice of the ducts of the prostate and seminal vesicle—a level at which stratified epithelium never normally occurs. Burrows and Kennaway confirmed Lacassagne's results and Burrows[b] later called attention to the fact that the so-called anterior lobe of the mouse's prostate is in fact the coagulating gland which was first described and differentiated from the prostate by Walker who was unable to identify a similar organ in man. Burrows also showed that the prostate gland itself reacts in mice to œstrin in a manner comparable with that of the coagulating gland, though not so readily. The changes occur in three stages—namely, (1) arrest of secretion, (2) hyperplasia of epithelium and fibromuscular stroma, and (3) epithelial metaplasia, the secretory cells becoming replaced by a squamous stratified epithelium. These changes do not affect the prostate uniformly but can be seen earliest as a rule in the ducts near the urethral orifices from which focus they spread by degrees towards the more distal parts of the parenchyma. This irregular distribution and partial limitation of effects has appeared to Burrows[b] to have its counterpart in the enlarged prostate of man. As Sir Cuthbert Wallace pointed out, the operation of suprapubic prostatectomy is an enucleation of adenomatous masses from within a capsule formed of compressed prostatic tissue. When comparing the conditions produced in the prostate of the mouse by the administration of œstrin with the enlarged prostate of man it will be noted that although squamous stratified epithelium is frequently seen in the former it is not usual in the latter. Yet its occasional presence in man has been recorded by numerous pathologists since it was first reported by Thiersch in 1865. Its relative infrequency in man as compared with the mouse may perhaps be attributable to a difference in the comparative anatomy of mice and men. In man the prostate is confined within the muscular apparatus of micturition, and consequently an enlargement of the gland may at an early stage cause difficulty in urination. In the mouse, on the other hand, the prostate lies outside the musculature of the bladder and urethra and hence is not in a position to cause urinary obstruction. It seems possible that in man the earlier proliferative changes in the prostate may be sufficient in themselves to cause the serious disturbances of health commonly associated with prostatic enlargements.

There is some direct evidence that the human prostate reacts to œstrogenic compounds in a manner comparable with that of the mouse. Many years ago Aschoff demonstrated the presence of squamous stratified epithelium in the prostatic utricle, prostate, and peri-urethral glands of the new-born child. He showed further that these changes, including the general prostatic enlargement which accompanied them, speedily disappeared after birth. It is now

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* For brevity the term œstrin is used in this paper to include œstrone and several allied œstrogenic compounds.

(Continued from previous page)

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known that the unborn child is subjected to a high concentration of œstrin derived from the placenta, and it seems probable that the changes which occur in the prostate before and after birth may be attributable to coincident changes in the œstrin content of the fœtal blood. The return to normality of the baby's prostate shortly after birth may perhaps be attributed to a cessation of the copious supply of œstrin. de Jongh and Burrows[b] have shown that in rats and mice the changes induced in the prostate by œstrin are reversible; after the supply of œstrin has been stopped, even though the stage of keratinisation has been reached, the epithelium will resume its normal structure and function.

The immediate source of hormone disturbance in cases of prostatic enlargement.—The potent influence of the testis on the accessory genital glands was shown by John Hunter; and when seeking the cause of prostatic enlargement in man suspicion is at once directed to the testis. Two groups of experimental results call for mention in this connexion. First, David and his collaborators have shown that a testicular extract (hombreol) is able to prevent œstrin from causing metaplasia in the accessory genital organs, including the prostate. A similar defensive action is possessed by certain pure chemical compounds—e.g., testosterone, androsterone, and some allied compounds (Zuckerman and Parkes, Korenchevsky and Dennison, Zuckerman). Secondly, it has been shown that males produce œstrin which can be extracted from the testis itself (Laqueur), in which organ it appears to be produced (Zondek). From these facts it seems possible that enlargement of the prostate in man may be, in part at least, the consequence of an excessive supply of œstrin or an insufficient supply of hormones of the testosterone group. Further, it would appear possible that castration might be a remedial measure, seeing that the histological changes induced in the prostate by œstrin are reversible. In 1895 White was able to collect 111 cases in which double castration had been performed for the relief of enlarged prostate in man. These operations, performed by different surgeons in various parts of the world, were followed by a reduction in the size of the prostate in 87 per cent. of the cases, results which strengthen the view that the testis plays an important part in causing prostatic enlargement.

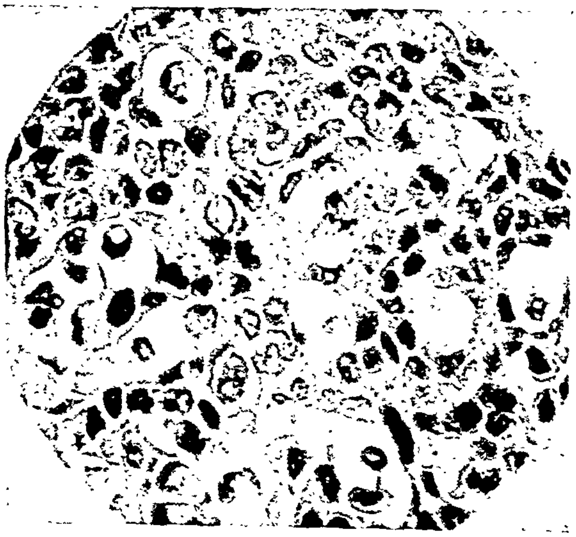

FIG. 1.—Section of right axillary lymph gland showing metastasis from mammary carcinoma. (× 600.) This and all the following illustrations except Fig. 4 are from tissues of the patient referred to in the text.

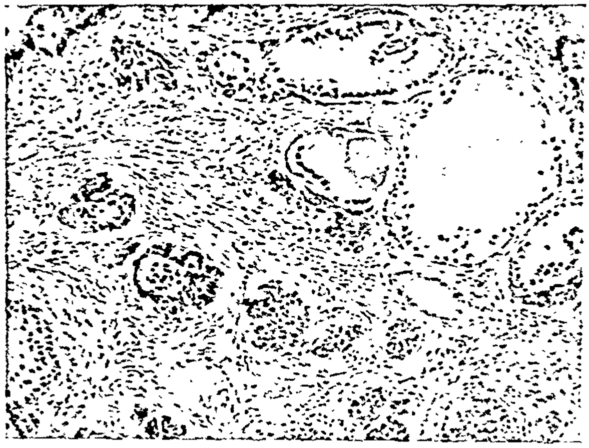

FIG. 2.—Prostate. Note exuberant formation of new ducts. (×120).

EFFECT OF ŒSTRIN ON THE APPENDIX TESTIS (SESSILE HYDATID OF MORGAGNI)

In male mice submitted to prolonged dosage with œstrin, cysts have been occasionally observed adjacent to the epididymis and vas deferens (Burrows[c]). These cysts, which are lined by a squamous keratinising epithelium, have not been seen in untreated mice and are regarded as vestiges of the testicular end of Müller's duct brought into evidence by the specific effect upon them of œstrin (Fig. 4). If this explanation be correct, and if in fact the enlarged prostate of old men is the consequence of an unbalanced production of œstrin, then one might expect to find some histological change in the appendix testis in these cases; and the change to be expected would include an epithelial metaplasia, the normal single layer of cuboidal or columnar cells of this structure being converted into a stratified keratinising epithelium. It was determined to make a systematic investigation of this point. Only the material from a single case of enlarged prostate has been available hitherto; and whether as a coincidence or as a verification of the supposition mentioned above, a structure, approximately 2·5 mm. in length, consisting largely of stratified squamous epithelium is present in this case in the region of the appendix testis (Fig. 5).

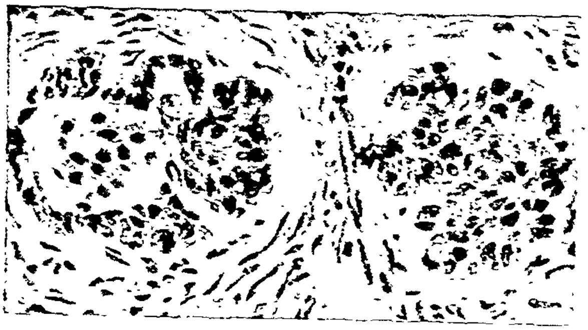

FIG. 3.—From same section as Fig. 2. (× 345.)

BRIEF CLINICAL NOTE

The patient, aged 79, was sent to the Royal Cancer Hospital (Free) by Dr. John Stevens and was admitted under the care of Mr. C. E. Shattock on May 4th, 1936, with retention of urine. He had suffered from increasing frequency and difficulty of micturition for several years. He also had a right-sided mammary carcinoma and pulmonary tuberculosis. The retention of urine was caused by an enlarged prostate. The patient's blood-urea on admission was 114 mg. per 100 c.cm. Suprapubic cystotomy was performed under a local anæsthetic, and a Steinach II. ligature was applied bilaterally. The mammary carcinoma was treated by radiation. The patient became comatose and died on July 5th, 1936.

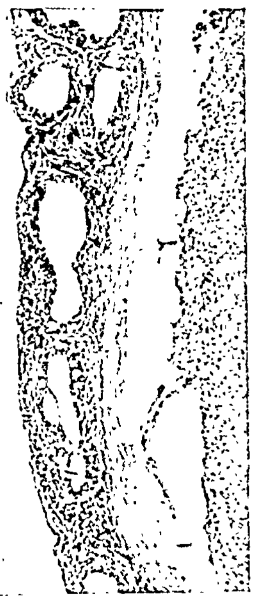

FIG. [illegible] — [illegible]

œstrin for a period of 175 days. The cavity of the cyst, filled with keratinised debris, lies to the right. (× 90.)

Observations on post-mortem material. — (1) Histological sections show a carcinoma of the right mamma with metastasis in the axillary lymphatic glands (Fig. 1). (2) The prostate is considerably enlarged by a general increase of the fibromuscular stroma, a few circumscribed adenomata, and a proliferation of the parenchyma with cystic dilatation of the ducts in some places. A copious development of new glandular tissue can be seen (Figs. 2 and 3). Though hyperplasia of the glandular epithelium is present here and there in the fully developed parenchyma it is not pronounced nor universally distributed. (3) Sections through the testis and epididymis show the remains of the ligature which had been applied to the vasa efferentia testis at the time of the operation. They also show that Leydig tissue is very scanty and that there is no spermatogenesis. The cells of the seminal epithelium have large nuclei and their cytoplasm is filled with droplets of varying size (Fig. 6). In the region of the appendix testis is a structure consisting of squamous, stratified epithelium in which prickle cells are conspicuous (Fig. 4). It seems possible that this structure is a Müllerian vestige brought to view by the specific action of œstrin.

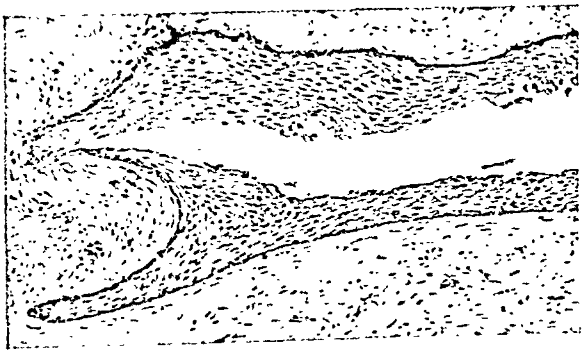

FIG. 5.—Structure consisting of squamous stratified epithelium, and lying between the epididymis and testis. (× 90.)

DISCUSSION

The case seems interesting enough to record because of the simultaneous presence of three separate lesions, each of which might be attributable to the effect of œstrin. Of this ætiology there is of course no proof. Enlargement of the prostate is a common condition in old men, and its presence conjointly with mammary cancer in a man of 79 requires no assumption of a common cause. The presence of stratified epithelium in the neighbourhood of the testicular appendix is curious, but there is no certainty that it represents a metaplasia of the appendix testis or that it has arisen in this structure. It might possibly be some unexplained consequence of the application of the ligature to the vasa efferentia testis. The problem itself, as displayed in the case record, can be solved only by further inquiry. It remains for the future to show what abnormalities, if any, are commonly present in the mamma and the appendix testis of patients with enlargements of the prostate; and it is in the hope of stimulating such inquiry that the present paper has been written.

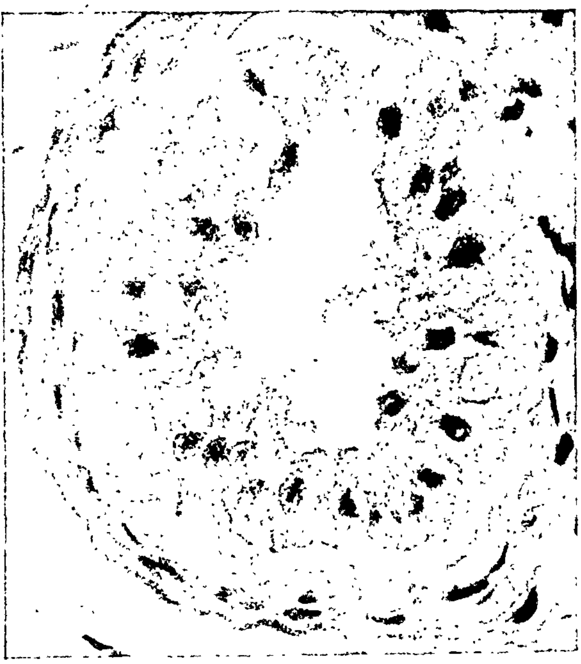

FIG. 6.—Seminal tubule showing absence of spermatogenesis. The epithelial cells are filled with droplets of various sizes. (× 430.)

In any such inquiry it has to be borne in mind that, although a sufficiency of so-called male hormone will protect the prostate and Müllerian vestiges against the pathological effects of œstrin, it will not protect the mamma in the same way. Gynæcomastia and hyperplasia of the mammary ducts may be seen in mice which have been given both androsterone and œstrin; indeed Selye, McEuen, and Collip have found that testosterone alone, administered to immature male rats, induces gynæcomastia and mammary secretion. Thus it would appear that while carcinoma of the mamma in the male possibly might be attributed solely to the excessive action of œstrin, enlargement of the prostate, though attributable also to the action of œstrin, would only come about in the presence of a simultaneous relative deficiency of so-called male hormone—a deficiency which is not likely to occur until after middle life.

SUMMARY

1. Experiments on mice have shown that in some circumstances œstrin can cause mammary cancer

in the male; and they have shown that œstrin produces in the prostate changes regarded as comparable with those of the enlarged prostate of men. Œstrin also brings into evidence near the epididymis in mice structures lined by a squamous keratinising epithelium and thought to represent relics of the testicular end of Müller's duct.

2. The case is briefly described of a patient who had (*a*) a mammary cancer, (*b*) an enlarged prostate, and (*c*) a structure lying between the testis and epididymis in the region of the appendix testis, consisting largely of squamous, stratified epithelium, and perhaps representing the testicular end of Müller's duct which has undergone metaplasia through the action of œstrin.

It is a pleasure to acknowledge my indebtedness to Mr. Shattock for permission to publish the notes on this case, and to Dr. L. M. Hawksley and Dr. C. C. Bryson for collecting and supplying the histological material and for help in other ways.

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Clinical and Laboratory Notes

ANOREXIA NERVOSA TREATED BY HYPNOSIS

IN OUT-PATIENT PRACTICE

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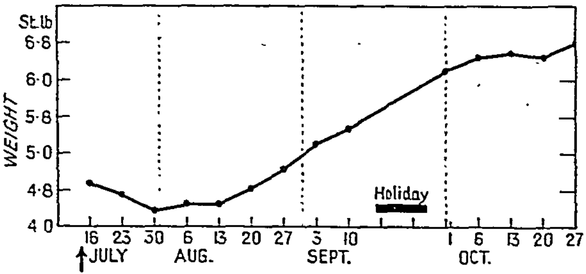
Since the original description of anorexia nervosa by Lasègue [1] and Gull [2] independently, the psychopathological basis of the disorder has been generally acknowledged. Nevertheless due weight has not always been given to mental factors in its diagnosis and treatment. Lasègue called the condition "hysterical anorexia," and the patients by their obstinacy, obvious enjoyment of being the centre of attention, "belle indifference" towards their symptoms, and phenomenal activity even, as Allbutt [3] remarked, when emaciation is well advanced, certainly lend support to this view. At any rate a morbid mental state is present and Ryle [4] has recently condemned all forms of treatment which overlook this. For psychological diseases need psychological treatment, and it seems reasonable to suggest that cases presenting the classical symptom-triad of anorexia, emaciation, and amenorrhœa, together with the characteristic mental background, should be handed over to the medical psychologist as soon as possible organic causes have been excluded. In order to forestall a dangerous degree of emaciation the physical overhaul should be accomplished as expeditiously as possible. The psychotherapeutic weapons of choice appear to be suggestion and persuasion, since analysis, except in a superficial sense, is put out of court by the necessity for obtaining quick results.

Current methods of treatment may be considered from this angle. Most generally employed and probably most successful is the time-honoured separation of the patient from her parents. As Gillespie [5] says, she is isolated from visits and "a reliable nurse is placed in charge with instructions to see that every feed is completely consumed." Simple explanations are usually given to both parents and patient, who is made to realise that her case is thoroughly understood by the physician, whose personality and prestige, together with a suitably impressive milieu, combine to make a strong suggestion of cure. It is interesting in this connexion to recall that Deniau [6] in 1883 related how the great Charcot once commanded a girl "en danger de mourir d'inanition" to eat, which she did and recovered. Other methods of treatment, such as dieting with periodic fast-days and insulin (Allison and Picton Davies [7]) and administration of thyroid (Levi [8]), are open to some criticism.



The patient's weight chart. She was hypnotised on July 14th, and on the other fourteen days shown.

If it be true that these methods owe what success they obtain to suggestion and persuasion overtly or covertly conveyed, then a fortiori a strong case is made for the employment of hypnotism, the most powerful known method of suggestion. Enthusiastic hypnotists have treated almost every known nervous disorder by hypnosis at some time or another, but I can find no reference to the treatment of anorexia nervosa in this way, although reports of cases by Tarrius [9] and Bérillon [10] in the "Revue de l'hypnotisme" of 1909 are unfortunately not extant in this country. The present case is interesting by virtue of the foregoing remarks.

THE CASE

The patient is a girl of 16. About May, 1935, when her weight was 7 st. 5 lb. she began gradually to lose her appetite, gave up eating breakfast, and by degrees cut out fats, milk, and meat from her diet. Her menses, which had started in August, 1934, ceased. In January, 1936, there was vomiting immediately after every meal, but in spite of this she remained active and felt well.

On March 25th, 1936, she was admitted to the West London Hospital, and her weight on admission was 5 st. 9 lb. The tongue was clean and nothing was found in the abdomen. Pulse average 80. Temperature 96°–98° F. Blood pressure 110/60. Basal metabolic rate: minus 42 per cent. Fasting blood-sugar 0·08 g. per 100 c.cm. Fæces: no occult blood present. A barium meal showed dilatation and ileus of the third part of the duodenum. A fractional test-meal showed the climbing type of curve, with starch still present after two hours. Treatment was by rest, glucose, and insulin, 5 units twice daily. She was discharged on May 14th weighing 5 st. 8 lb.

She began to attend the West End Hospital for Nervous Diseases on June 17th, refused to be admitted, and was referred to the psychiatric department on July 14th. By this time she was pale, languid, weak, and emaciated, and had severe constipation. Although her diet now consisted of only two slices of bread and a cup of tea per diem, she obstinately maintained that she felt well, displayed a "belle indifference" towards her symptoms, and performed her ordinary daily activities quite cheerfully. Treatment by hypnosis at weekly intervals was instituted, and simple suggestions about eating more, improvement in appetite, and regular actions of the bowels were given in the hypnotic state. Emphasis was placed particularly on those foods which she disliked. Nevertheless her weight fell from 4 st. 9½ lb. on July 16th to 4 st. 3½ lb. on July 30th, when she was so weak that she could hardly walk and had fallen downstairs.

Renewed attempts were made to persuade her to enter hospital but she declared that she felt and was eating better. She was directed to remain in bed at home until midday, which was the maximum she would concede, and hypnotic treatment was continued. Gradually her appetite improved, she ate more, vomiting ceased, constipation vanished, and she became stronger and put on weight. Marmite and Blaud's pill grs. 30 thrice daily were prescribed to stimulate hæmopoiesis. In the two months from August 6th to Oct. 6th she gained exactly 2 st. in weight (see Chart). Her weight on Oct. 27th was 6 st. 8 lb.

In the course of treatment the following facts were brought to light. She is normally affectionate towards her parents and younger sister, and there is no disharmony at home. The mother, who accompanied her to the hospital on several occasions, is a sensible, ordinary type, concerned, but not to the point of fussiness, about her daughter's health. The patient says that her father is inclined to be quick-tempered, in which respect she resembles him, especially towards her mother. She has had two girl friends but has as yet no interest in the opposite sex.

Her childhood was normal and she left school at the age of 14½. Shortly afterwards she became apprenticed to a suburban drapery business, where she worked long hours for low wages and food which she found unappetising. Here the head buyer was officious, watching her movements closely and never letting her rest for a minute. Then she lost her best girl friend, who left the district, and shortly afterwards began to go off her food. Her mother's well-meaning efforts to persuade her to eat more were met by increasingly stubborn refusals and outbursts of bad temper, a vicious circle which culminated in September, 1935, when she resigned her position at the shop, with her parents' concurrence. At Christmas her other girl friend was accidently burned to death.

SUMMARY

(1) An early diagnosis of anorexia nervosa, which depends on rapid exclusion of organic disease and recognition of the characteristic mental picture, should be at once followed by appropriate treatment. (2) In the case cited hypnotic suggestion achieved a rapid recovery, without necessity for removal to hospital or separation from parents. (3) In this case it is doubtful whether the unconscious motive of revolt against the authority of the parents was operative, for an uncongenial occupation, an unappetising cuisine, and the loss of two friends were more obvious factors. Criticism on the ground that duodenal obstruction was present and caused the symptoms is met by pointing out the successful issue brought about by psychotherapy.

I am indebted to Dr. G. Konstam for permis publish notes on the patient's condition while West London Hospital.

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INTENSIVE OXYGENATION IN A C OF ACUTE EMPHYSEMATOUS (GA GANGRENE

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Gas gangrene is now rare in civil surgery, but still crop up as sequels to traumatic surgery road casualties. My object in reporting the f ing case is to enter a modest plea for prophy serum therapy, and to reawaken interest in th of active oxygenation in the treatment of lished cases of this serious and often fatal cond

A man, aged 42, was pinned underneath his car after a collision, and was admitted to the Bu Haywood, and Tunstall War Memorial Hospital on A 28th, 1933. He was suffering severely from shock; was a compound fracture of the upper end of the radius, a penetrating wound of the antecubital foss deep tissue lacerations extending into the muscles arm. On response to anti-shock measures he was to the theatre and, under nitrous oxide and oxygen thesia, the wound was resected and lavaged with fl and the radial fragments levered into position. tetanus serum (1500 units) and polyvalent antist coccal serum (10 c.cm.) were administered by w prophylaxis.

On August 30th, forty-two hours later, the lim much swollen and discoloured, and exuded a very discharge; tissue crepitus was marked. At 2 P.M infection had entered the deltoid and amputation considered. Shortly afterwards the patient be delirious and showed other signs of grave constitu upset. Blebs appeared on the limb. Owing to the ra of spread and the patient's grave general condition o tion was deferred. At 5 P.M. crepitations had exte to the front and back of the chest and the radial puls absent at the wrist. Anti-gas-gangrene serum (10,000 was injected, all sutures were removed, and the ar incised longitudinally. All muscle planes in the n bourhood of the elbow were cut transversely to pro drainage. Oxygen was administered by subcuta and intramuscular injection at various levels and a foul discharge and gas expelled. A barrier of i muscular oxygen was then made beyond the limi spread—i.e., into the trapezius and latissimus posteriorly and the pectoral muscles anteriorly. tinuous through-and-through hydrogen peroxide la was instituted, together with continuous oxygen perforated rubber tubes in the wound depths. More gas-gangrene serum (20,000 units) was also administ

At 10 P.M. the condition was stationary and at 1 on the 31st there was an appreciable improvement. temperature and pulse-rate had fallen and the deli gone. Continuous lavage with H_2O_2 and repeated infi tions with O_2 were carried through during the n At 12 noon on the 31st guillotine amputation in diately above the elbow-joint was performed under and O_2 anæsthesia. The patient made an uninterru recovery. Crepitus was present until the tenth day discoloration until the fourteenth. The stump healed by healthy granulations.

The case is interesting in that intensive oxygenation coupled with serum therapy not only prevented further spread in a well-established case of gas gangrene, but restored the affected parts to such an extent that low amputation was possible. The extraordinary rapidity of spread from elbow to shoulder tip is an indication of the virulence of the infection and explains the alarming deterioration in the patient's condition. While the imminent danger of air embolus was realised the risk seemed fully justified.

I have since tried to find other records of oxygen treatment in bacillary gangrene. Lawson [1] employed the following technique: H_2O_2 infiltration (10 vols. at body temperature) into the tissues above the gangrenous area down to the fascial sheaths of muscles. This is followed by treatment of the gangrenous area by puncture and infiltration. He used a Higginson's syringe, the drawback to this being a prolonged anæsthesia as the superficial tissues had to be cut to allow the nozzle to be inserted. Eckhoff,[2] summarising a series of cases, mentions treatment with H_2O_2 and with oxidising agents—e.g., permanganate—but says nothing of the early infiltration of oxygen either in its actual gaseous or nascent state.

I am indebted to Mr. Harold Hartley for the use of his library, and to Dr. Adam Gilchrist for permission to publish the case notes.

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[1] Lawson, C. B.: Brit. Jour. Surg., 1915, ii., 454.

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MEDICAL SOCIETIES

MEDICO-LEGAL SOCIETY

At a meeting of this society held in London on Nov. 26th, with Mr. Ainsworth Mitchell, D.Sc., the president, in the chair, a paper on

The Medico-Legal Institute

was read by Dr. W. G. **Barnard**. A committee appointed by the society, he said, had reported on this subject in 1925; but though general approval was expressed, nothing was done. Last January the Departmental Committee on Coroners referred in its report to a medico-legal institute, and recommended coroners to employ pathologists to make post-mortem examinations. An interim report in June by the Advisory Committee on the Scientific Investigation of Crime marked a further advance, since it recommended the establishment in London of a medico-legal institute, and outlined its functions and scope.

The qualifications of specialists to give expert evidence in coroners' and criminal courts, said Dr. Barnard, had been critically examined; thus a chemist with no special training in regard to poisons would not be accepted as an expert on such a subject. Yet a medical practitioner who might never have examined a dead body was, in the eyes of the law, competent not only to perform an autopsy but also to give his opinion on the cause of death. Coroners who wished pathologists to make their post-mortem examinations were handicapped by the fact that pathologists attached to most of the medical schools were appointed on a whole-time basis. At present both pathologist and practitioner could only regard coroners' post-mortem work as a side-line; there was also a lack of due facilities, and a chance that the opinion given would be based on mere naked-eye appearances. He contended that in all cases coming before coroners the examination should be thorough. The present system was wasteful; the 6000 autopsies made annually in London represented a great wealth of pathological material, which at present could not be made available to the profession at large, and the conditions were such that medico-legal experts could not hand on their knowledge and technique.

Describing the institute required, Dr. Barnard suggested that it should be somewhere between Euston-road and the British Museum, near the new University of London. It should contain one large, and one or two smaller, post-mortem rooms, adequate cooling-plant, and viewing-rooms; also laboratories for histology, chemistry, bacteriology, and research, a lecture room, a library, a store, and a museum. There should also be small laboratories for private investigations, a department of toxicology, and a small department of bacteriology. The bodies to be examined could be collected from the mortuaries by means of institute ambulances, and the examinations would be made as soon as possible after their arrival. Students would be taught in post-mortem room, the museum, and the lecture theatre.

For the success of the scheme, said Dr. Barnard in conclusion, it was essential that the Home Office should coöperate. The only change would be that the autopsies would not be made in the mortuaries of the borough councils, and that the London County Council would make all payments for them into a fund, instead of through the coroners to a number of individuals. As regards responsibility, a good precedent could be found in the British Postgraduate Medical School, where responsibility was shared by the Government, the University, and the County Council.

The **President** thought that in such an institute chemistry should be assigned a special department, with a standing equal to that of pathology and law.

Sir **Bernard Spilsbury** fully agreed with the contention that expert pathologists should be employed by the courts. Many laymen, and some coroners, believed that autopsies were mere matters of routine, which any medical man who had had ordinary experience was competent to carry out—a serious error. In cases of suspicion especially, a very thorough examination was essential; and those who made it should have the resources of good laboratories behind them. At present there were no facilities for training pathologists or others in medico-legal pathology; those keen on the subject were left to train themselves. It would be difficult to establish a medico-legal institute in London, but when once resources were available it would not be impossible. Still, the advance might have to be made step by step. If the institute were established in a small way first, some of the work might be done there, and some subsidiary work carried out at the better equipped borough mortuaries.

Sir **William Willcox** considered it important that the institute as adumbrated should not be directly under the Government; evidence given in the courts should be absolutely free from bias. It should be under the University of London, rather than under the police department or entirely under the Home Office. Though the medico-legal work done in this country was admirable, it had all depended on individual effort, and was often done under great difficulty. At the institute a well-equipped toxicological laboratory would be a great boon, and he agreed with the President about the importance of having the collaboration of expert chemists. It was not suggested that the central institute could carry out the work of the whole country, but it would equip special pathologists who could proceed to the provinces and do their work there.

Mr. F. D. LEVY thought that the scheme as set forth did not take enough cognisance of the legal side. The Bar Council and the Law Society should be approached, and eminent lawyers should be on the institute staff, to give lectures and participate in the work.

Dr. A. BALDIE said it was true that for this coroners' work the expert was necessary, but there was also a large amount of routine work that could well be performed by the general practitioner. His opinion was that most of that routine work was being done, and had been done in the past, very efficiently.

Dr. E. R. BOLTON preferred for such an institute the name "scientific institute for investigating crime and the causes of sudden death," and he would make its scope very comprehensive. It should be a place to which anyone who had a difficulty in these matters would naturally come.

Mr. BRUCE TAYLOR, as a coroner, agreed that the evidence of a man who seldom did an autopsy was not as valuable as that of one who did perhaps 300 annually.

Mr. D. H. KITCHIN thought one of the main difficulties was that the two professions were shut up in water-tight compartments. The institute would have missed its purpose if it did not bring the two professions more into contact than they were at present. Judges and members of the Bar should be included in the scheme. And in the paper there was no mention of medical psychiatry and psychotherapeutics.

Dr. D. C. NORRIS said that one of the functions of the institute might be to elucidate cases of industrial poisoning. Possibly industrialists could be induced to contribute to its cost.

Mr. POTTER suggested that great help would be forthcoming if the University of London and the Royal Colleges of Physicians and Surgeons could be induced to interest themselves in the project. Though the University had a faculty of law it had no professor of forensic medicine.

Dr. BARNARD, in reply, said that his purpose had been to present the problem from the point of view of the pathologist. He thought that if the authorities concerned were approached, support for the new institute would be forthcoming. Provided properly trained pathologists were employed, the scientific value of post-mortem examinations to the profession was incalculable. A number of men, however, were doing autopsies in medico-legal cases who had not been trained as pathologists and were apparently not aware of their own limitations.

BRITISH ORTHOPÆDIC ASSOCIATION

THE annual meeting of this association was held in London on Oct. 30th and 31st under the presidency of Mr. W. R. BRISTOW. On both mornings at the Royal Society of Medicine a series of short papers were presented, of which the following is a summary:

SCIATIC SCOLIOSIS: Mr. E. N. Wardle (Liverpool).

Twenty-six patients suffering from this complaint were reviewed. They fell into two groups—those without and those with deformity. The majority of patients occupied the latter group. The author suggested that diminution in the height of the intervertebral disc between the 5th lumbar and 1st sacral vertebræ might be of importance in determining the occurrence of pressure on the lumbosacral cord. In all the patients complete relief had followed prolonged immobilisation of the spine in a plaster jacket applied in suspension.

PROTRUSIO ACETABULI: Mr. John Gilmour (Newcastle).

The author contended that protrusio acetabuli commenced in early adolescence, and almost exclusively in the female sex about the time of menstruation. He argued that softening of the Y-shaped cartilage due to some endocrine disturbance of ossification resulted in a giving way before the pressure of the femoral head, with consequent increase in depth of the socket. He considered the condition analogous to separation of the upper femoral epiphysis in adolescence (slipped epiphysis).

ARTHRODESIS OF THE HIP: Mr. H. J. Seddon (London).

Nineteen patients were reported on whom an extra-articular arthrodesis had been performed for healed tuberculous arthritis of the hip. At first a tibial graft had been used but the author expressed his preference for a broad full thickness iliac graft. Emphasis was laid on the advantages of operating through a large window in a previously applied plaster-of-Paris spica. Sound bony ankylosis had occurred in the large majority of patients, and the excellent functional results following the procedure were demonstrated by many of the patients in person.

DIAGNOSIS IN SURGICAL TUBERCULOSIS: Dr. Joseph Bamforth (London).

The author outlined the manner in which a high percentage of positive cultures could be obtained from fluids containing the tubercle bacilli—e.g., pus, synovial fluid—on special media. The method has the advantage of reliability, and the facilitation of early diagnosis for a statement one way or the other can be supplied in from 2 to 3 weeks after incubation.

SKIN DEFECTS LIMITING JOINT MOVEMENT: Sir Harold Gillies (London).

Patients were demonstrated illustrating the advantages of different forms of skin grafts for contractures and skin defects around various joints. The resulting improvement in appearance and function was particularly striking in a patient suffering from generalised œdema of both lower extremities, with extensive skin ulceration. Fresh channels of lymph drainage had been established by grafting strips of skin from the arm to replace those taken from the lower abdomen and upper thigh—in this way opening up fresh communications between the lower limb and trunk lymphatic systems.

CHRONIC BACKACHE: Mr. J. S. Batchelor (London).

In a review of 116 patients these fell in almost equal numbers into two groups: (1) mechanical backache, due to faulty posture, &c.; (2) that due to fibrositis, acute and chronic, superficial and deep. Emphasis was laid on the frequency with which backache caused by mechanical strain is complicated by the occurrence of secondary fibrositis. Different régimes of treatment were advocated for each of the two groups. For the mechanical strain repeated manipulation without anæsthesia, followed by appropriate exercises, had proved more successful than routine manipulation under anæsthesia. Acute and subacute fibrositis demanded adequate rest and heat in the early stages, followed by graduated exercise, and occasionally a manipulation under anæsthesia to restore mobility. A manipulation under anæsthesia was usually necessary as a preliminary in the treatment of chronic fibrositis. Relief of symptoms had been achieved in almost all of the patients suffering from mechanical strains and in about two-thirds of those suffering from fibrositis.

ŒDEMA OF FEET AND ANKLES: Dr. A. A. Osman (London).

The author described an œdema of the feet and ankles, not associated with organic disease, which he regarded as a local manifestation of a generalised metabolic disturbance, clinically associated with general debility. In all of his patients he had found a lowering of the alkali reserves (acidosis). He believed the œdema to be due to gravity acting in the presence of a water-logged soil. The majority of his patients had been cured by appropriate periods of rest and administration of large doses of alkalis, usually in the form of potassium citrate (up to grs. 1000 daily).

THE SMITH-PETERSEN PIN: Mr. H. A. Brittain (Norwich).

A consecutive series of 20 medial fractures of the neck of the femur were reviewed, all treated by internal fixation after reduction, with a Smith-Petersen nail introduced over a calibrated central guide through a half-inch incision, under X ray control. It was claimed that the three main difficulties—the reduction of the fracture, the placing of the nail correctly both in the antero-posterior and lateral planes, and the selection of a nail of correct length—were more easily overcome by this method than by open procedure. It was wise to place the nail near the inferior and posterior margins of the femoral neck, since this minimised the risk of it breaking out of the capital fragment by adduction and external rotation of the limb—the position most frequently adopted by a patient resting in bed. Three deaths occurred—one from pulmonary embolus and two from causes unassociated with the injury. Of the remaining seventeen patients, union of the fracture occurred in all except two.

TREATMENT OF FRACTURES: Mr. George Perkins (London).

The author emphasised that a fracture was a dual injury—injury to the bone and injury to the soft parts. He made a strong plea that both should be treated concomitantly by encouraging active movement and use of those joints not immobilised by the necessary splintage from the very beginning.

GIANT-CELL TUMOURS: Mr. Roland Barnes (Manchester).

A critical survey of 38 giant-cell tumours of long bones seen at the Memorial Hospital, New York. The best results in terms of non-recurrence and of joint function had been achieved by curettage and cauterisation. Treatment by irradiation alone was not advisable, since it usually meant that histological proof of the nature of the tumour was lacking, that the cartilage of neighbouring joints was extensively damaged, and that recurrences were a little more frequent. Complete excision of the tumour was an excellent procedure, though with a very limited field of application. Amputation remained as the treatment of choice in neglected tumours in the upper end of the tibia or lower end of the femur.

On the afternoon of the 30th a demonstration of operations was given and a large number of patients illustrating end-results were shown at St. Thomas's Hospital by Mr. C. Max Page and Mr. Perkins. In the evening the members dined together at the Langham Hotel. Among the guests were the president of the Royal College of Surgeons of England and Dr. Ralph Ghormley, secretary of the American Orthopædic Association.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY

AT a meeting of this society held on Oct. 30th with the president, Dr. RUTH NICHOLSON, in the chair, Mr. PERCY MALPAS (Liverpool) read a paper on abnormal

Inclination of the Pelvic Brim

as a factor in dystocia. Apart from a paper by Caldwell and Jacobs and a reference by Theobald in a recent discussion little, he said, had been published on the subject. Hitherto interest in the pelvic inclination had centred upon its anthropological significance or its bearing on the determination of the true conjugate. Lateral X ray pelvimetry and lower segment Cæsarean operation had afforded opportunities for assessing the effect of abnormal inclination on the mechanism of labour. There were two ways of estimating the inclination: (1) The usual way of measuring the angle between the brim and the horizontal plane. But this angle was modified by posture and took no account of the lumbar spine. (2) Dr. R. E. Roberts's method of measuring the angle between the plane of the brim and the front of the body of the fifth lumbar vertebra. In the gorilla the pelvic brim forms nearly a right angle with the horizontal, the inlet facing almost directly backwards, but this high inclination is offset by a forward crouch of the lumbar spine, so that the angle between the brim and LV5 is reduced to about 100°, an angle which readily permits correspondence between the axis of the uterus and of the brim. It might be termed "*obstetric*" *inclination* as distinguished from "postural" inclination. The obstetric inclination varied with posture, but to a lesser extent than the postural. The average measure was about 130°, with a range of 10° to 20° with posture, full flexion of legs and spine reducing it to 120°. Accurate measurement was only possible by the use of X rays, but a guide was furnished by the inclination of the external conjugate to the horizontal plane and the line of the lumbar spine. The increased lordosis noted in many pregnant women was a postural compensation for the pelvic inclination.

Seven cases of apparent disproportion at term presented two significant features. (1) Although the head was freely movable above the brim at the onset of labour, measurement of the biparietal diameter of the fœtal head immediately after delivery showed it to be smaller in each case than the true conjugate of the brim. (2) There was an unduly high inclination of the brim. In five the head did not engage after some hours of labour and a lower segment Cæsarean section was performed. In a sixth case the first stage of labour was prolonged to 40 hours, while the second stage was over in 1½ hours, the child being stillborn. In the seventh there was marked lateral flexion of the fœtal head on the spine and a living child was born by natural forces after a prolonged first stage. In three cases small pelvic measurements were found in association with a relatively horizontal pelvic brim. In each, despite anticipation of dystocia, labour proceeded normally.

The general effect of high inclination was to reduce the effective size of the true conjugate and to modify the mechanism so as to produce posterior asynclitism or Litzmann's obliquity. Lateral flexion of fœtal head upon spine was one of the ways by which compensation was established; its effect is to restore the normal synclitic relation between the head and the plane of the brim. The main problem in these cases was to restore correspondence between the axes of uterus and brim. Theobald recommended pulling the uterus forwards during the pains; Caldwell and Jacobs full flexion of the thighs. Smellie suggested something similar as long ago as 1766. A favourable posture spontaneously adopted by many women in the first stage of labour is to stand with the trunk leaning forward over a chair or the end of a bed, the arms or shoulders supporting the upper half of the body, the free abdomen allowing gravity to act on the uterus. Trial labour was invaluable in these cases. Mr. Malpas ended with an acknowledgment of help from the radiological work of Dr. Roberts and Dr. P. H. Whitaker.

In the discussion which followed, Prof. D. DOUGAL (Manchester) welcomed the explanation of certain cases in which the head overlapped though the pelvic measurements were normal.—Prof. LEYLAND ROBINSON (Liverpool) remarked that the pelvic inclination was greater than normal in the small round pelvis and less than normal in the flat pelvis, an additional reason why the former type gave the more trouble.—Prof. MILES PHILLIPS (Sheffield) asked whether alterations in the pelvic inclination could be detected clinically.—Dr. E. A. GERRARD (Manchester) mentioned Jona's method in the estimation of relative size of head and pelvis, the patient being made to sit up, when an apparent overlap might disappear, presumably owing to a lessening of the pelvic inclination.

Mr. MALPAS replied that the actual angle of inclination could only be determined by radiograms, but some clue might be obtained when taking the external conjugate, particularly when the patient had a straight back.

Mr. T. N. A. JEFFCOATE (Liverpool) reported a case of

Endometrioma of the Vulva

He had only been able to find reference to six other cases in the literature.

The patient, a nulliparous nurse of 45, complained of a small tender swelling at the posterior aspect of the right labium majus. This became so painful just before menstruation that she had to go off duty, and during the period there was a blood-stained discharge from the tumour. Her previous history was as follows: Onset of menstruation at 19, regular 5/30 throughout. Operation 1931 in Athens for excision of a right Bartholin's cyst. Slight pyrexia following operation, but little or no delay in healing. The operation was performed twelve days before menstruation, local anæsthesia being employed. Curetting was not performed. A month later an abscess appeared under the scar and was incised. Seven further abscesses developing in the next six months were treated with fomentations. May, 1932, a further operation at Athens for aspiration of an inflamed swelling, tincture of iodine being injected at the same time. June, 1932, operation at Marseilles—gland and abscess excised. The incision was closed but suppurated and an open wound resulted. The patient began to menstruate two days after the operation. This wound never healed completely and always bled a little before menstruation. The small lump appeared four months after operation: it was only obvious after menstruation and gradually disappeared in four or five days.

The patient first consulted Mr. Jeffcoate in June, 1936—i.e., four and a half years later, her symptoms having persisted during the interval. On examination there was considerable scarring at the posterior aspect of the right labium majus and beneath this was a small hard tumour with a depression and reddening over it. The uterus was retroverted but no other pelvic abnormality was palpable. The tumour was excised and showed small blue cysts, one of which burst during the operation and discharged a small quantity of old blood. The incision was healed fifteen days after the operation, and there had been no return of symptoms. The specimen, removed on the seventeenth day of the menstrual cycle, was a roughly spherical tumour three-quarters of an inch in diameter, with two or three small cavities containing blood. Microscopic examination revealed typical endometrium in the interval phase and presenting the appearances of hyperplasia.

Mr. Jeffcoate felt sure the tumour had arisen as the result of implantation of endometrium. As curettage had never been performed the endometrioma must have developed from endometrial cells present in the menstrual blood. Most likely implantation had occurred immediately after the third operation, when the incision had broken down exposing a large cavity, and menstruation had occurred within a few days. There were previous records of implantation of endometrium from menstrual or lochial discharge.

Prof. DOUGAL reported a case of

Arrhenoblastoma of the Ovary

In June of this year he had been asked to see a girl of 18 with the following history:—

Menstruation commenced at the age of 13 and continued every twenty-eight days with a normal four days loss until 16½ when the periods ceased. The patient then noticed that her voice was becoming deeper in tone and that hair was appearing on the face and other parts of the body where it had not hitherto been present. She also developed acne and was treated with X rays but without deriving benefit. Her sella was radiographed but nothing abnormal found. She was a young woman of average stature with well-marked male secondary sex characters. Her face was unhealthy with acne; hair was present on the cheeks, upper lip, and chin. The breasts were flattened and atrophic, the nipples shrunken, and several hairs were growing on the areolæ. Hair was also present on the front of the chest, the abdominal wall, and the front of the thighs and legs. The pubic hair was abundant and of male distribution. There was little subcutaneous fat and no rounded contours. The external genitals were small with the exception of the clitoris and prepuce which measured over an inch in length. The orifice of the vagina was extremely small, the canal narrow, and the body of the uterus atrophic. No definite tumour could be made out in the renal or hypogastric regions but on bimanual examination the right ovary was found enlarged, and it was decided to examine under an anæsthetic, but little more information was forthcoming. The girl's parents were interviewed and consent obtained to operate. On June 12th the abdomen was opened. The right ovary was about the size of a walnut and fairly firm in consistence; it was removed. The body of the uterus was atrophic and the other ovary normal in size.

The patient made a good recovery and had a normal period on July 19th. When seen on August 11th her complexion was clearer and there was less hair on the face, chest, and abdomen. The breasts were larger and the clitoris smaller. By Oct. 28th there was further improvement. Menstruation was now regular every 28 days, duration 6 days. Weight was up and the body contours becoming more rounded. The hair on the face had largely disappeared and that on abdomen and thighs was scantier and of finer texture. The breasts were now well developed and firm. The clitoris was little larger than normal and the uterus appeared to have regained its proper size. The voice was still deep but its tone was definitely higher than before the operation. (This point was demonstrated by gramophone records.) The patient was well satisfied with her progress and asked if she might get married.

The ovary removed was about the size of a walnut, the enlargement being due to a solid tumour of softish consistence and olive green colour, distinct from the ovarian tissue proper which surrounded it in the form of a thin shell. The microscope showed a richly cellular growth with a varied appearance in different parts of the tumour. In some places the cells were arranged in cords, in others the arrangement was trabecular, in others again diffuse and resembling sarcoma. Sections stained with sudan III showed no evidence of fat.

The arrhenoblastoma, said Prof. Dougal, is the masculinising tumour and like the granulosa-cell tumour and disgerminoma it is believed to arise from rests of the primitive mesenchymal cells of the gonad. It is usually unilateral and its malignancy if any is of low degree so that, in young women at any rate, it is not necessary to remove the uterus and both ovaries. It is extremely rare, only 26 cases

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REVIEWS AND NOTICES OF BOOKS

Diseases of the Air and Food Passages

of Foreign Body Origin. By CHEVALIER JACKSON, A.B., M.D., Sc.D., F.A.C.S., LL.D., Professor of Bronchoscopy and Esophagoscopy, Temple University; and CHEVALIER L. JACKSON, A.B., M.D., M.Sc. (Med.), F.A.C.S., Professor of Clinical Bronchoscopy and Esophagoscopy, Temple University. London: W. B. Saunders Co., Ltd. 1936. Pp. 969. 52*s.* 6*d.*

A SENTENCE in this book may properly be quoted in full to explain why for so long a period the Chevalier Jacksons, father and son, have had something like a monopoly of one branch of medical practice. They write :—

> "One of the most impressive things shown by the case histories of the earlier days of the bronchoscopic clinic is the fact that there existed in the mind of the practitioner, in regard to foreign bodies in the air passages, a curious misconception of the symptomatology, and no conception at all of the diagnosis. The reason for this state of affairs was that cases of foreign body had been placed among the curiosities of medicine, to be discovered at autopsy; whereas the presence of a foreign body should be considered a possibility to be excluded in every patient with pulmonary symptoms, acute or chronic."

The state of affairs set out in these clear terms still exists in large measure. A mere glance at this book is enough to appreciate its size and significance; a little study will reveal that the 969 pages are filled with details of vital importance.

No surgical operation is so satisfactory as that for removal of a foreign body in the air or food passages; it restores to complete health a life that would otherwise be lost. But while few are likely to possess the equipment to carry out the difficult procedures described, it should be within the power of most to learn to recognise the signs and symptoms due to a foreign body. Not many practitioners, for instance, could interpret the physical or radiographical signs of a vegetable foreign body; after reading this book they will be in a position to make the diagnosis with expedition. Although the book is big, no space is wasted. A description of the ætiology, pathology, symptomatology, and treatment of foreign bodies is followed by a tabulation of all the objects dealt with. It would be difficult to think of any object that is not mentioned, from teeth to tonsils, nuts to needles, and coins to coal.

When it is realised that the extraction of foreign bodies represents but a small proportion of the work carried out in the Jacksons' clinic, the vastness of their experience is apparent. Apart from the saving of life, valuable stores have been added to our knowledge of the mechanism of pathological processes in the lungs. Medicine owes a debt of gratitude to the authors.

Statistical Methods for Research Workers

Sixth edition. By R. A. FISHER, Sc.D., F.R.S., Galton Professor, University of London. Edinburgh and London: Oliver and Boyd. 1936. Pp. 339. 15*s.*

No very extensive changes have been made in Prof. Fisher's vade mecum. Perhaps the most important is an extension in the table of the distribution of z, for making various tests of significance, provided by Dr. W. E. Deming. Attention has also been called to a formula for the sampling error of values estimated by regression, and to an extended use of successive summation in fitting polynomials. A reference in the preface to a new Section 15·1 is a slip; it should read Example 15·1 which appears on page 111.

The statistically frail may well find the path the author follows too thorny for their liking, and certainly it cannot be denied that the road winds upwards to the very end. But one may say (undaunted by mixed metaphors) that the proof of the pudding lies not only in the eating but in the diner's demand for more. And of that there is clearly no doubt, for six editions have been called for since the book's first appearance in 1925.

Recent Advances in Radiology

Second edition. By PETER KERLEY, M.D., B.Ch. (N.U.I.), D.M.R.E. Camb., Assistant Radiologist, Westminster Hospital; Radiologist, the Royal Hospital for Diseases of the Chest. London: J. and A. Churchill Ltd. 1936. Pp. 322. 15*s.*

THIS member of the "Recent Advances" series does not conform to the pattern on which most of them have been planned; it resembles rather a text-book on radiology. In the second edition many alterations have been made. The diagnostic aspect of radiology is more fully described, and the section on therapy has been omitted altogether.

Fractures are reviewed only briefly, certain special sites alone being considered. Diseases of the bones and joints are more fully described, and the chapter on deformities and diseases of the skull contains much useful information. In the description of cardiac lesions the author demonstrates the value of radiology, but the reader is left wondering whether it is really possible to make a diagnosis so confidently on radiological findings alone. A large section of the book is devoted to diseases of the lungs. A curious error occurs on the first page of this section. The author notes that the side of the film away from the patient is less dense than the other side, and deduces from this that every ray passing through the chest is absorbed, and that every structure in the chest must therefore cast a shadow. The explanation generally accepted is that the first layer of emulsion absorbs a certain amount of the rays and in consequence less radiation reaches the distal layer, which is therefore less blackened. This would occur even if no tissue was interposed between the tube and the film. Even if every ray was absorbed, it would

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having been published up to 1933. With the increasing interest in these tumours, however, it seemed likely that many more would appear in the literature before long.

The case was discussed and some difference of opinion expressed as to whether or not the patient's voice had changed as a result of the removal of the tumour. A number of speakers thought that a change in the voice was hardly to be expected in view of the largely cartilaginous structure of the larynx. Cases had been reported, however, with definite statement that the voice had altered its character.

Mr. T. F. TODD (Manchester) showed a specimen of an early chorion epithelioma.

not necessarily follow that every structure would cast a shadow.

In the description of lesions of the alimentary tract, some statements are difficult to reconcile with the title of the book. For example, in discussing the diagnosis of ulcer of the stomach considerable importance is still placed on the so-called indirect signs. The impression is conveyed that gastric stasis together with initial hyperperistalsis is of value in the diagnosis of a gastric ulcer; in most centres the diagnosis of ulcer is now made only when the crater is seen, and indirect signs are regarded as of little or no value. The statement that in many cases spasm of the pars pylorica and carcinoma cannot be differentiated will certainly be disputed. The author states that a six hours residue is evidence of a pathological condition, without mentioning the possibility that a severe headache or faintness may be the explanation of the stasis.

The reproductions throughout the book are good, but the inexperienced reader looking at photograph 144 may be misled by the fact that the lesion of the upper part of the body of the stomach is referred to simply as an ulcer, no explanation being given of the resemblance to carcinoma. This is unfortunate in view of the fact that the book will be widely read by students as well as by their seniors. There is much useful information in this book, although some recent developments, such as arteriography and tomography, are not included in it.

Animal Micrology

Fourth revised edition. By MICHAEL F. GUYER, Professor of Zoology in the University of Wisconsin. London: Cambridge University Press. 1936. Pp. 331. 11*s.* 6*d.*

THIS is the fourth edition of a book which has been deservedly popular among beginners in microscopic work in America for the past thirty years. It deals with every aspect of microscopic technique in a manner suitable for those who have had little experience. Every step in the use of a method is described clearly and possible difficulties which beginners might encounter are anticipated in advance. Teachers will also find it of great assistance in so far as they are told the best material to use for the illustration of different micro-structures. The new edition contains an extra chapter on the recently developed dioxan method by which material can be transferred from a watery fixative to paraffin, without the intermediate alcohols and clearing agents, thereby avoiding much shrinkage and distortion.

Dental Material, Pharmacology and Therapeutics

By WALTER J. DILLING, M.B., B.Ch. Aberd., Professor of Pharmacology and General Therapeutics, School of Dental Surgery, University of Liverpool; and SAMUEL HALLAM, L.D.S. R.C.S. Eng., Hon. Dental Surgeon, Liverpool Royal Infirmary. London: Cassell and Co., Ltd. 1936. Pp. 328. 10*s.* 6*d.*

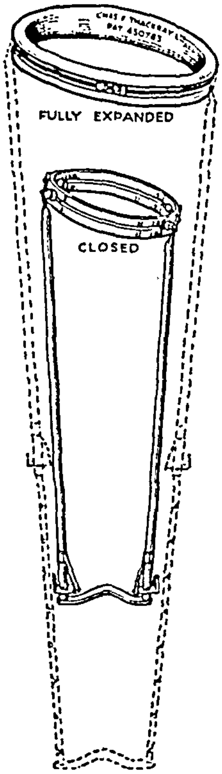
THIS should prove a useful book to both students and practitioners. It contains all the information about drugs used in dentistry and their action which any dentist is likely to require. This is not to say that all the statements therein will meet with general approval. For example, the authors demand the abandonment of arsenic as a devitalising agent for the pulp and of turpentine as a hæmostatic. Many practitioners still find arsenic of value, and it may be doubted whether, properly employed, it leads to any objectionable sequelæ. It is true that there do not appear to be rational grounds for the use of turpentine as a styptic, but none the less it often appears to be effective. On the other hand, *liquor ferri perchloridi* is mentioned, though with the caution that it should be used sparingly; this drug should have no place whatever in dental practice. Useful sections are those on the general treatment of poisoning and on the Dangerous Drugs Acts as they affect the dental profession.

NEW INVENTIONS

A UNIVERSAL SPLINT

THE usefulness of the Thomas splint is often minimised in practice by the fact that an extensive range of different sizes for varying patients must always be kept on hand. Often the correct size cannot be obtained just when it is wanted; moreover these appliances are bulky things to store. These difficulties are overcome in a "new universal splint" made to my suggestions.

This is adjustable for (1) size of ring, and (2) length. Consequently it is universal in its application as the same splint can be used for a child or a man. The ring is an arrangement of two curved flat and slotted springs made of stainless steel, which can be made larger or smaller in circumference in a moment and quickly fixed at any desired size. The side members consist of steel tubes with telescopic rods, which can be lengthened by merely pulling on the foot end of the splint and which lock automatically at any desired position, and they can be equally easily shortened. For padding on the ring Dunlopillo sponge rubber is used in ample section to fit the steel spring of the ring, which can be fixed thereto by a piece of strapping if desired. This gives comfortable padding. It is supplied in a ring to fit the largest diameter and can be cut to the size required.



This appliance fills a long-felt want, since hospitals, ambulance stations, &c., need now carry only small stocks. It is also very useful in private practice, and its portability should appeal to the medical services of the Army, Navy, and Air Force. It weighs only 3 lb. and when collapsed to its smallest size measures 23 in. long by 6½ in. ring diameter. I have tried it in a number of cases, both for adults and children, and it works perfectly. It is easy to manipulate, is quite rigid and strong, and provides all the various sizes met with in practice.

I am indebted to the manufacturers, Messrs. Chas. F. Thackray Ltd., Leeds, for the able manner in which they have carried out my suggestions.

A. G. ORD, F.R.C.S. Edin.,
Hon. Surgeon i/c Orthopædics, Royal Portsmouth Hospital.

THE LANCET

LONDON: SATURDAY, DECEMBER 5, 1936

CHEMOTHERAPY OF STREPTOCOCCAL INFECTIONS

ONLY fourteen months have passed since the first announcement in this country that a specific remedy had been found for acute streptococcal infections. The original German experimental evidence has since been confirmed in France and in England, and the first English series of cases successfully treated with Prontosil was recorded in this journal on June 6th. To-day we publish a further clinical report by Dr. LEONARD COLEBROOK and Dr. MÉAVE KENNY, which extends their first findings and reinforces their original conclusion, and also a paper, in which Dr. COLEBROOK collaborates with Dr. G. H. BUTTLE and Dr. R. A. Q. O'MEARA, describing observations that seem at last to reveal how this remedy works.

It will be remembered that although the action of prontosil in experimental mouse infections appeared on the face of it to be bactericidal, no sufficient action of this kind was demonstrable in vitro, either in plain mixtures with bacteria or in the presence of fresh blood with its leucocytes. The clue to the explanation of this contradiction was provided by TRÉFOUEL, NITTI, and BOVET,[1] who found that para-aminobenzenesulphonamide, a substance closely related to prontosil and simpler in constitution, was equally curative of streptococcal infection in mice, and who suggested that this substance is formed from prontosil in the body. The paper that we now publish deals with the resumption of in-vitro experiments in the light of this hypothesis—"sulphonamide," as this substance is more conveniently termed, being used in place of prontosil. Even so, purely negative results might have followed had ordinary methods been used, but what has emerged is that if an extremely small inoculum of streptococci is introduced, sulphonamide destroys them in blood even when present in so low a concentration as, for example, 1 in 18,000. This method of test is not only legitimate in this connexion but distinctly appropriate, since the actual number of streptococci in the blood in septicæmia is small, not often exceeding some hundreds per cubic centimetre. Sulphonamide is therefore capable of destroying streptococci in blood, provided their numbers are small, even in extreme dilutions such as are produced by medication in vivo, although concentrations over a hundred times greater are powerless to attack undiluted culture under the most favourable in-vitro conditions. Whether so great a degree of dependence for bactericidal effect on the numbers of bacteria concerned is a unique property of this substance we do not know, although variations similar in effect but of lesser degree have been demonstrated for other germicides; this aspect of the subject merits further comparative study. In any case the fact remains that the curative action of prontosil and sulphonamide is now explained as a directly bactericidal one, and at a time when successive disappointments with a score of antiseptics had led most people to conclude that the disinfection of the blood stream in septicæmia is by nature a complete impossibility, we can now rejoice that this result has been unmistakably secured. So complete a reversal of expectation is extraordinary; that the remedy is one that can be given by the mouth, and may conceivably be found to act sufficiently when given only in this way, instead of by some troublesome parenteral route, is almost more remarkable still.

The fresh clinical evidence is as conclusive as it could be, to the extent that every one of the 26 treated cases of puerperal sepsis recovered, including 6 with septicæmia. To the very heartening conclusion suggested by these results there is the possible objection that a natural decline in the mortality of this disease may be in progress. Of this interesting possibility the evidence is not conclusive, and only the most rigid sceptic would refuse a substantial share of the credit for this unbroken series of recoveries to the new treatment used. The actual system of medication consisted of giving prontosil, in doses varying with the severity of the illness, both intramuscularly and by the mouth. A further series is to be treated with sulphonamide, which can only be given by the mouth; presumably this will be unaccompanied by intramuscular prontosil, since with that addition the comparison would be inconclusive.

Although much remains to be done in discovering the capacity and limitations of these remedies, it has become an imperative duty to employ them not only in puerperal fever, but also in other severe forms of streptococcal infection. Those who may be unprepared to accept this statement will perhaps go at least as far as to treat alternate cases, using serum either in all (if they still believe in it sufficiently) or only in the remainder. That the treatment of such cases has hitherto been generally fruitless is beyond dispute, and it is more than possible that prontosil or sulphonamide may introduce the dependability of therapeutic effect that has hitherto been lacking. Nor need the exploration confine itself to the gravely ill patient: we have yet to hear what these substances will do for streptococcal tonsillitis or scarlet fever. Another sphere not to be forgotten is that of prophylaxis. The parturient woman is not the only type of patient in whom streptococcal infection is to be feared within a period limited to days. There is usually no reluctance to exploit a successful new remedy; the eventual tendency is rather to extend its application beyond the bounds of its capacity. Here is a field in which we may at least hope that those bounds have not yet been approached.

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[1] Compt. rend. Soc. de biol., 1935, cxx., 756.

PREPARATION FOR AIR-RAIDS

ON p. 1355 will be found a report of a gathering of medical men and women met to consider their position in regard to attack by hostile aircraft. It was not a large gathering but it represented many shades of political thought and it was unanimous on one thing—the need for the medical profession to study the natural history of aerial warfare in its relation to human suffering and to formulate its own programme for the alleviation of this suffering. And the practical outcome of the meeting was an invitation to the British Medical Association to organise such an inquiry as a part of its service for the common weal in the same way as it had instituted an inquiry into the nutrition of the people and the proper ration for the maintenance of health and efficiency. The meeting was fully enough informed of the nature of the risks that would be run by an urban population in an attack from the air with modern equipment of high explosive, incendiary bomb, and poison gas to feel strongly that they should be studied with the same scientific precision as any other devastating disease. Only if this were done would medicine be able to take its share whether in prevention or treatment.

Those of us who accept this suggestion may do so on two different grounds, and it is right that the difference should be recognised. The majority of those attending the meeting believed, with good reason, that the public does not understand the probable effects of attacks on great cities from the air; that it relies unduly on such armour as the gas-mask and the gas-proof room; and that the Government, seeking above all things the preservation of order during emergency, is not being frank about the inadequacy of the provisions it can make in advance. Those who hold this view are anxious that an independent body, whose views carry weight, shall undertake an inquiry that will reveal the truth to people now in ignorance of it. Some of them feel that a full realisation of this truth would make the public more concerned to consider whether war is necessary and what can be done to get rid of its probable causes—immediate and remote. The other group who would like the B.M.A. to appoint a committee of investigation do so because they believe doctors to be vitally concerned in the management of the war disease, once it has broken out. A scientific body, they say, will find it easier than a government department to study all the implications of warfare on a civilian population. The profession, in fact, will become more useful to the government and to the people if it is better informed of the facts—including those not given in the official handbooks. Thus the proposal that "medicine should take its share in prevention and treatment" means different things to different people. Some of us hope that a scientific committee could still do something effective in the prevention of war; others look upon it merely as a means of preventing unnecessary casualties when the war has come.

Generally speaking, immediate measures of prevention are less effective than long-term policies; and they do not always serve the intended purpose. Our grandfathers shut their windows on cold nights to stave off tuberculosis, and during the past few years we have watched the men and women of central Europe trying to save themselves from destruction by similarly unsound means. In capital after capital the inhabitants have been persuaded to buy gas-masks and discipline their families against the peril of attack by neighbouring nations; and as they have gradually come to think this terrible danger inevitable they have been persuaded to tolerate greater and greater armaments that menace these neighbours in their turn. Gas-masks and defensive preparation for aerial attack have done much to accustom the people of Europe to the idea that war is coming soon; and the fever of preparation has infected this country. What then is there left for medicine to prevent? What is the special function of the medical man in these circumstances? As a citizen it is presumably his duty to help in the government's plan for minimising the effect of war; and if he really knows more than the Home Office does about the action of the latest gases, the evacuation and feeding of refugees, the safeguarding of water-supplies, or the quenching of fires, he should make his knowledge available by issuing reports or by other suitable means. But members of our profession also have another duty. By occupation we are extra-national; in working hours at least our duty is not towards any particular country but towards mankind; and our pride is to discover facts and face them. To many this will seem a higher loyalty than that of citizenship—should the two conflict. The profession, as such, owes no allegiance to governments or government departments, and membership of it obliges us to state, and act upon, the truth as we see it.

MEDICAL BENEFIT FOR THE ADOLESCENT

THE KING'S Speech on Nov. 3rd contained an assurance that legislation would be introduced to provide medical care for young persons who had left school and entered employment, and it is anticipated that the result of the extension will be to bring into medical benefit some 700,000 persons. The Insurance Acts Committee is already discussing with the Ministry of Health the terms on which medical benefit shall be provided for those people between school-leaving age and 16 years. We learn that the Ministry justifies the suggestion of a capitation fee of less than 9s. on the grounds (1) that, as there will be no sickness benefit, there will also be no medical certification, (2) that the amount of medical attention required will be less than for the average insured person, the stage of childish infections having passed, and that of adult illness (for example, tuberculosis) not having been reached. The first ground seems to us of doubtful validity. Insured persons who have passed the age of 65 years do not require certificates, their title to sickness or disablement benefit having ceased, but there is no reduction in the capitation fee in respect of them. The second ground is frankly contrary to public policy. Admittedly the illnesses of adult life are unlikely to occur, but it is precisely this period in which the seeds of them are laid. The transition from school life to industrial life is sharp. School meals being no longer available, alimentary errors begin to arise and need correction. Instead of enjoying a long mid-day break, two free days a week, and many weeks of holiday in the year, the apprentice may be working longer hours by day and attending continuation school by night with only the Saturday afternoon and Sunday to himself, and he is lucky if he gets a week's holiday in his first year of employment. These new demands require a readjustment of body and mind, and even if actual illness during this period is less frequent, of which we should require statistical evidence, there must be many occasions, particularly among the girls, when the doctor's help is needed.

We understand that the Insurance Acts Committee will, if the Ministry persists in its proposal to cut the rate for adolescents, summon an emergency conference of local medical and panel committees. We hardly think it will come to that, for the Ministry of Health would have no support from the public in saving money at just that period of life when preventive care would have the most effect. Has the Minister forgotten that the National Insurance Act of 1911 was "an Act to provide for insurance against loss of health and for *the prevention* and cure of sickness"?

A DIRECTORY OF WATER

THE water-supply attracts little public attention, except when drought has given rise to a shortage of water or to a fear of shortage. There are in this country 1011 bodies with statutory powers, general or special, for supplying water, and some 1080 companies and persons are supplying water without such powers. The Duke of Norfolk, for instance, provides the town of Arundel, which lies under the shelter of his castle with its domestic supply. This and much more can be learned from the magnificent directory[1] produced by the British Waterworks Association which contains a comprehensive survey of water resources based on answers to a questionnaire sent to all the bodies responsible for supplying it. It even includes information about water undertakings at such distant places as Capetown, Singapore, and Penang; at the last-named junks and tong-kangs can get a thousand gallons for 80 cents, whilst other vessels pay $1.10. The response to inquiry has no doubt not been equally complete everywhere, but one can open the book with a good hope of finding at least the date of establishment of a particular supplying body, its powers and limitations, the conditions and charges to householders and special users, as well as the source and character of the supply, whether hard or soft, and the means of storage and purification. The practice of water undertakings in charging for non-domestic supplies varies. In many places pharmacists are charged extra, in some cases specifically for bottle-washing; in a few, surgeries are specially rated. Varying rates are charged for horses and cattle per head, whilst one authority is so astute as to increase the charge for places of worship by 2*s.* 6*d.* for baptistries. An emigrant to Auckland, New Zealand, may be relieved to find that he need not take his base-exchange softener with him since the water is of only 1·1 degrees temporary and 2·3 permanent hardness on Clark's scale. Some informants seem to have gone astray; it seems unlikely, for instance, that Ipswich water contains only 22·4 grains of temporary and 6·1 of permanent hardness per 1000 gallons, when it comes from borings in the chalk.

A new and important feature of this edition of the directory is the information about the chemical and bacteriological character of many supplies given in response to a questionnaire drawn up by the late Sir Alexander Houston and his successor, Lieut.-Colonel C. H. H. Harold. Here Houston's influence is shown in the coloured paper chosen so that this part may be referred to readily. While some authorities reduce the value of the analytical data supplied by omitting the number of samples examined or the period over which they are collected, the mass of data is very valuable. It includes such things as pH value, conductivity (unit undefined), plumbo-solvency, cupro-solvency, and iron content; many authorities are to be congratulated on the candour with which they have admitted the ability of their water to dissolve lead. A health resort notes considerable variation in the character of its water from all sources during the year, but does not supply any bacteriological data although the chemical data suggest that the water is of fairly high purity except from the most doubtful of three sources. The water from boreholes in Colchester contains 30 parts of chlorions per 100,000, and when diluted down with spring water the proportion is still about 21 parts. The volume should interest not only those whose business it is to supply water but all who are contemplating residence or industrial undertaking in districts of which they have little personal knowledge. Mr. W. Terry and his co-editor are to be congratulated on this monumental work; its weight (4 lb. 7 oz.) may be taken as symbolical of its value.

WE regret to learn the death at Hereford, in his eighty-third year, of Dr. Theodore Cash, F.R.S., emeritus professor of materia medica in the University of Aberdeen.

Dr. E. H. Kettle, F.R.S., director of the department of pathology at the British Postgraduate Medical School, professor of pathology in London University, and consulting pathologist to St. Bartholomew's Hospital, died in the early morning of Tuesday, Dec. 1st.

WARNEFORD HOSPITAL, LEAMINGTON.—The committee of this hospital has been promised an anonymous gift of £10,000 towards the new maternity block scheme.

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[1] British Waterworks Directory with Statistical Tables. Fifth edition. General editor: G. P. Warner Terry, Barrister-at-Law, Assoc. Surv. Inst., F.S.S.; assistant editor: Leonard W. F. Millis, B.Sc. (Econ.), F.S.S. British Waterworks Association, in coöperation with the Ministry of Health. 1936. Pp. 734. £1 1s.

ANNOTATIONS

CLINICAL RESEARCH AT CAMBRIDGE

THE plans outlined in our issue of June 27th have taken shape, and Cambridge has now a school of clinical research in active being. It is called the Department of Medicine and its director is Dr. John Ryle, the regius professor of physic. Working with him already are a whole-time assistant director of research (Dr. J. F. Brock) and four whole-time Elmore research students. The staff of Addenbrooke's Hospital have given cordial coöperation and they help to complete the unit. For purposes of record, investigation, and following-up of cases they have put all the medical beds of the hospital at the Department's disposal, while six beds have been set aside for the director and assistant director to be used more particularly for research. Laboratories have been provided and equipped in the University department of pathology which is near at hand, and the goodwill being shown by workers in other branches of science promises to bring about liaisons that will further the interests of clinical and correlative research. In the beginning now made there is good reason for confidence and congratulation.

DURATION OF VOLUNTARY APNŒA IN THYROTOXICOSIS

SOME years ago an observant anæsthetist in America noticed that severely thyrotoxic patients were unusally apt to become cyanosed under gas-and-oxygen anæsthesia; they were intolerant of the slightest withdrawal of oxygen. Such patients withstood thyroidectomy badly, and so often died afterwards that the occurrence of this cyanosis came to be taken as an indication for abandoning the operation. The anæsthetist also noticed that these patients could not hold their breath for anything like the normal length of time. His son, a surgeon, has since investigated this phenomenon systematically.[1] With a stopwatch he measures the time for which a patient, after a little practice, can hold her breath, (*a*) following a full inspiration, and (*b*) following a full expiration. In general, he finds that these times are reduced in thyrotoxicosis, but the figures obtained in large series of normal people show such a wide range of variation [2] [3] that a single observation on a thyrotoxic patient gives little indication of the extent to which that patient has departed from her own normal. The ratio of the two times, however, may be more significant. An index, obtained by dividing (*a*) by (*b*), lies in normal people between 1·8 and 2, but in most thyrotoxic patients at a lower level, from 1·7 down almost to 1. It does not bear a close or direct relation to the basal metabolic rate or the vital capacity, but a rather elaborate analysis of 178 observations on 111 patients has convinced Dr. Bartlett that it does reflect the severity of the thyrotoxicosis and the fitness of the patient to undergo operation. He finds it of help in deciding between single-stage and two-stage thyroidectomy in fairly severe cases which remain severe in spite of preliminary medical treatment: an index of 1·7 or over encourages him to perform a single operation, while one of 1·5 or less means that a fairly sharp post-operative reaction is likely even after a hemithyroidectomy. After such a first-stage operation, he waits till the index has risen before undertaking the second stage.

Dr. Bartlett has been unable to elucidate the physiological basis for these changes in breath-holding capacity, which is scarcely to be wondered at, for the factors involved, psychological as well as physiological, must be numerous. He has also to segregate a small group of thyrotoxic patients, usually those who in health had had some special physical training, whose indices lie well above 2 when they are ill and approach 2 again as they improve. But if the test is empirical, it need not on that account be without value: Dr. Bartlett adds it to our recognised clinical criteria in thyrotoxicosis, hoping thereby to assess more completely "the dissimilar facets of this many-sided disease." It has, at least, the virtue of simplicity.

HOSPITAL WAITING-LISTS

THE publication by the Central Bureau of Hospital Information of a memorandum containing particulars of the waiting-lists of provincial hospitals raises the question whether the conditions differ in any considerable degree from those prevailing in London. The accessibility of London hospitals probably increases the figures by a certain amount of duplication, as the patient failing to gain admission at one hospital may go or even be sent by the family doctor to another and the name is not removed from the waiting-list of the first hospital. In addition the readier use of the out-patient department may lead to a larger number of patients being entered for admission for investigation, especially to hospitals with medical schools. The admirable out-patient time-table of which a new edition has just been issued by King Edward's Hospital Fund greatly facilitates the work of the general practitioners. The growth of out-patient departments connected with the L.C.C. hospitals suggests that the issue of a combined time-table may soon be needed by doctors, especially when their patients have been in L.C.C. hospitals.

It will be seen that in the provinces the status and prestige of the municipal hospital undoubtedly have to be taken into account in connexion with the waiting-lists of the voluntary hospitals. The memorandum issued by the Bureau is suggestive on this point, as a most welcome departure has been taken from the usual procedure followed in making its returns by the publication of the names of the hospitals. Broadly speaking the municipal hospitals which have been transferred to the public health committee are more readily recommended by the general practitioner and held in higher esteem by the patients than those still under public assistance committees. At the same time particulars given in a memorandum of this kind must be considered with caution as it is impossible to record all the local conditions. Cardiff Royal Infirmary, for example, has the highest number of cases per bed on the waiting-list. The aggregate shows an increase of more than 50 per cent. on the previous year. This was due to an appreciable extent, though the fact does not come within the purview of the memorandum, to almost continuous outbreaks of infectious disease which necessitated the closing of wards over considerable periods. Nevertheless the waiting-lists of Blackburn Royal Infirmary and the East Suffolk and Ipswich which suffered in the same way do not show any analogous increase. The figures, which in all cases relate to June 30th, show an increase of nearly 50 per cent. at the Leeds General Infirmary, although the annual report recorded that during 1935 there had been a decrease of 164. The figures relating to the two general hospitals in Sheffield do not show any appreciable effect of the arrangement whereby five hundred patients may be transferred annually from their waiting-list to the City General Hospital. The memorandum records the increase of accommodation between 1931 and 1936, which for a time after it has been made, as in the case of Leicester Royal Infirmary, leads to a decrease but supply also seems to increase the demand.

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[1] Bartlett, W., jun.: Surg., Gyn., and Obst., November, 1936, p. 576.

[2] Wittich, F., and Polczak, J.: Amer. Rev. Tuberc., 1926, xiii., 54.

[3] Jackson, C., and Lees, H.: Amer. Jour. Physiol., 1929, lxxxvii., 654

An uncertain factor in the figures is the extent to which they are kept up to date and the "remarks" show that the practice in making inquiries about the continuance of the patient's need for admission varies a good deal in different hospitals. Fifteen hospitals on the list having over 200 beds supplied particulars of the type of cases on the waiting-lists. This is clearly an item in which it is difficult to secure uniformity of classification and that probably accounts for gynæcological being only 3 per cent. of the total while under that heading Cambridge with 22 per cent. and Oxford with 12 per cent. are far in excess of all the others. Whatever doubt there may be about details in this memorandum its publication is further evidence of the concern which the authorities of voluntary hospitals are displaying about their waiting-lists. It may be true but is not useful to point out that the local authorities are under a legal obligation to provide for these patients. Logically a patient has as much right to a choice of hospital as he has to a choice of doctor. Moreover it is essential for his welfare that he should be able to go to a hospital in which he has confidence. Clearly means must be found by which the voluntary hospitals can extend and maintain their accommodation.

AN ISLAND COMMUNITY

THE total population of Iceland is 114,000, nearly a third of the total being concentrated in Reykjavik. We have pointed out more than once [1] the promising field for epidemiological study presented by such a natural self-contained community. The report for 1934[2] has 152 closely printed pages and a 5-page summary in English for readers unfamiliar with Icelandic. The climatic conditions of the year under review were unstable and unfavourable, the rainfall being 32 per cent. above the average. Outbreaks of diphtheria are combated in Iceland by free immunisation of all susceptible school-children. Schick tests have shown that only about 10 per cent. of children between the ages of 8 and 13 are Schick-negative. The Schick-positive reactors are immunised by two injections three weeks apart; most of these children were given alum-toxoid, but some were given Ramon's anatoxin. Re-testing of the children about a week after immunisation suggested that the alum-toxoid was more effective than Ramon's anatoxin. There has of late been a considerable decline in the tuberculosis death-rate; in 1924 it was about 0·2 per cent. of the whole population, whereas in 1934 it was down to 0·14 per cent. For the first time in many years tuberculosis has ceased to head the list of causes of death. In the year under review, old age came first with 170 deaths, followed by tuberculosis of all forms with 165 deaths, cancer came third with 148 deaths, and pneumonia fourth with 137 deaths. All the other causes of death in 1934 ran to two figures only. Leprosy continues to decline; in 1925 there were 50 lepers alive, and in 1934 only 31. But it should be noted that in this year the diagnosis was made for the first time in three cases. Hydatid disease is also declining, and in 1934 there were only 16 live cases, whereas the corresponding figure for 1925 was 50. The percentage distribution of cancer was as follows: stomach 43·2, breast 12·2, œsophagus 6·8, uterus 4·7, other organs 33·1 per cent. Medical school inspection is compulsory at the beginning of each session, special attention being paid to the discovery of tuberculosis. Infant mortality was 5·29, a little over the previous five-year average; it is noteworthy that only about 10 per cent. of the infants did not enjoy whole or partial breast-feeding.

TIME, SIDEREAL AND BIOLOGICAL

IT is often difficult to fix the proper limits of scientific imagination. Most scientific writings have too little: there is plenty in M. du Noüy's book,[1] and it is based on a wealth of carefully ascertained facts. It makes therefore rather unusual reading and rather more interesting than is common. After some generalities and a curious excursus into Landsteiner's work on the specificity of antigens, the author gives a detailed personal account of the work on the rate of healing of wounds in which he was associated with Dr. Carrel, and, in less detail, Carrel's evidence that senility is a function of the organism as a whole and that tissues are immortal if they are separated from the rest of the body either physically in artificial culture or physiologically in malignant tumours. His main fact is that if a child of 10 heals a wound of a certain size in 20 days, a man of 20 will take 31 days, and one of 50 78 days. The sidereal time on which our clocks work moves as it were four times faster for the man of 50 than for the child, which corresponds with the general experience of older people. Hence in biology sidereal time does not always mean what it says any more than it now has its old meaning to philosophical physicists. The facts are of course not new: that the tissues of young animals grow faster than in old age has been a commonplace for a very long time, and if the author had been more of a biologist than a physicist he might have drawn much additional information from older writers such as Minot or Rubner and found in them much of what he has to say. As it is, enthusiasm replaces scholarship, and it is a lively rather than a profound book.

SYNTHETIC DYES AND BLADDER TUMOUR

THE association between the aniline dyes and the occurrence of bladder tumours amongst the workers has been recognised since 1895. Dr. G. H. Gehrmann, medical director to E. L. du Pont de Nemours and Company of Wilmington (Del.), recently opened a discussion on their ætiological connexion.[2] Bladder tumours, Dr. Gehrmann concluded, are caused by long exposure (5–25 years) even to low concentrations of certain nitro and amino substances which are intermediate products produced during the manufacture of certain dyes; he mentioned aromatic amines, such as aniline "a" and "b" naphthylamine, benzidine. The tumours may be benign or malignant, single or multiple. Early treatment is essential for success, and this implies early diagnosis which requires periodic cystoscopic examination. Proper methods of control in industry would, he felt sure, eliminate the incidence of these tumours. These dyes were originally produced only in Germany, but since the war they have been manufactured increasingly in other countries. In Great Britain manufacture is largely, if not entirely, confined to one big industrial group in which great precautions against exposure are taken This makes it unlikely that bladder tumours arising from exposure to dye products will occur with any frequency; but the risk is there and constant vigilance is required. In human beings the earliest signs of tumour growth appear upon the trigone, in experimental dogs it is rather the anterior wall of the bladder—in either case the most dependent surface. This suggests that the carcinogenic substances precipitated from the urine in the bladder sink to the part where the early lesions first appear. These observations may have important bearing upon cancer research.

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[1] THE LANCET, 1929, ii., 783; 1934, i., 1128; 1935, ii., 1129.

[2] Public Health in Iceland, Reykjavik, 1936.

[1] Biological Time. By Lecomte du Noüy at Institut Pasteur. London: Methuen and Co. 1936. Pp. 177. *7s. 6d.*

[2] Jour. Amer. Med. Assoc., Oct. 31st, 1936, p. 1436.

AMERICAN MEDICAL DIRECTORY

You cannot get the best out of anything unless you know how it works; and the American Medical Directory is no exception to this rule. The new edition which is before us [1] is more than a list of names of physicians with their addresses; even as a list it is admirably complete, and so clearly printed that reference is easy. But it requires an intensive study of the directions in the contents as well as of the foreword before it is discovered what a veritable encyclopædia of personal and institutional information about the practice of medicine is contained between the covers. In the opening section is a history of medical schools in the U.S.A., the tale of hospitals approved for training residents, a list of medical libraries and journals, a list of government officers and of the members of special medical societies. In the gazetteer of doctors, grouped by States, which occupies 1700 pages, it is possible if you know the key to the abbreviations to ascertain the following things about every entry: full name, year of birth, medical college, year of graduation, year of licence, membership of any special society, teaching appointment in any college; and in cities of more than 10,000 population is added the street address, both of residence and office, and the hours of consultation. The directory thus answers, if not completely at all events in good measure, the questions: Who is any physician, anywhere, who wants me or whom I want? Who is the physician who has called me in consultation? Who is the author of this article in my journal? It is no small credit to the organisation of the directory that its vast scope has not imperilled the accuracy of the smallest details.

THEVETIN IN GOITROUS TACHYCARDIA

The sinus tachycardia that in greater or less degree is an almost constant symptom of toxic goitre has been found to be uninfluenced by digitalis preparations; and the same is true of other tachycardias of toxic origin—for example, those of infections, shock, and hæmorrhage. It is therefore interesting to have Noble and Chen's report [2] that thevetin, a glucoside derived from the plant *Thevetia neriifolia*, whose action in many ways resembles that of digitalis, produces definite slowing of the heart in goitre. In 22 cases with simple tachycardia (only one with heart failure) a slowing of 12–70 beats per minute was obtained with doses of 3–9 cat units of thevetin intravenously, the tests being carried out both before and after thyroidectomy. The effect, however, was often transient, and it is significant that in one severe case in which the heart-rate was 150 the drug had no slowing effect at all, and the patient died in a postoperative crisis. The question here arises how far it is desirable to reduce tachycardia by such means. In toxic goitre the metabolic rate is usually raised, and this calls for an increased circulation rate—a demand that is met by an increased rate of beating by the heart. Another important consideration is that, apart from heart failure, rates up to about 200 do not impair circulatory efficiency but increase the cardiac output.[3] To reduce a compensatory tachycardia, which is a response to an increased circulatory demand, may therefore be misguided, and after all perhaps it is fortunate that such an effect is not easily obtained with ordinary drugs in ordinary doses. Previous studies on thevetin [4] suggest that while it may be more potent than digitalis, its toxic effects are in proportion. Apart therefore from the disadvantage to the circulation of slowing a compensatory simple tachycardia in this condition, there is the objection that the drug may directly injure the myocardium and so produce abnormal rhythm and varying grades of heart-block.

THE SPANISH SITUATION

Readers of the letter published in our last issue under the heading "An Ambulance in Spain" have asked us to give the address of the Spanish Medical Aid Committee which maintains the unit at Grañen. We are glad to state again that money or offers of help should be sent to this committee at 24, New Oxford-street, London, W.C.1. In equally serious need of assistance is the Scottish Ambulance Unit for Spain which has been in the thick of the battle on the Madrid front, and donations for its work will be gratefully received by Sir Daniel Stevenson, 5, Cleveden-road, Glasgow. These are the only two bodies that have sent out ambulance units from this country to Spain, but medical equipment and stores have gone from the Catholic Bishops' Committee for the Relief of Spanish Distress (38, Eccleston-square, S.W.1), and it was announced last week that the British Red Cross Society had raised about £1150 towards the work of the International Red Cross. In relation to the needs of the Spanish people such sums are very small, and we trust that more will now be done to show that this country is not entirely content to pass by on the other side. In a letter to the Relief Committee for Victims of Fascism, (1, Litchfield-street, W.C.2) Ralph Bates, the author, writes:

> "It will be hard for English people to realise what a Spanish winter is like. They always think of Spain as a warm country, whereas its winters are fiercer than any you would find, say, in the North of Scotland. Can you picture the plight of the wounded on the open plains around Madrid, which are as high as the summit of Snowdon, and which will be snow-covered at least until April? The wind on this plain, coming from the ice and snow on the Guadarrama and Gredos mountains, is as cold as any Siberian east wind . . . Bear in mind that the Spanish worker, even in peace time, is never able to afford leather boots and that he will be fighting throughout the winter in thin socks, and in all probability, canvas shoes."

Members of the Society of Friends already report a desperate need of clothing and of food—especially of milk—among the child refugees. They are collaborating with the Save the Children International Union in arranging for the transportation of hundreds of children, who were stranded in holiday camps, to France or to safer districts of Spain itself, and with more funds they would be able to distribute clothing and food and undertake further relief as may be needed when the winter grows worse. Contributions to this work may be sent to the Save the Children Fund, 20, Gordon-square, W.C.1, or to the Friends Service Council, Friends House, Euston-road, N.W.1.

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[1] American Medical Directory. 1936. Fourteenth edition. A register of legally qualified physicians of the United States and Canada. Chicago: Press of American Medical Association. Pp. 2487. $15.

[2] Amer. Jour. Med. Sci., November, 1936, p. 639.

[3] Luten, D: Amer Heart Jour., October, 1936, p. 435.

[4] Arnold, H. L., Middleton, W. S., and Chen, K. K.: Amer. Jour. Med. Sci., 1935, clxxxix., 193.

GRANTS FOR RESEARCH

At the 274th anniversary dinner of the Royal Society on Monday last Mr. Neville Chamberlain as Chancellor of the Exchequer announced that at the request of the Medical Research Council he has consented to make a grant of £30,000 a year towards the establishment of an institute of chemotherapy. He mentioned that Government grants to universities and colleges now amount to £2,300,000 a year (apart from the British Postgraduate Medical School) and grants for civil research proper to £1,660,000. Expenditure on research for defence is this year £3,800,000, of which a great part will have useful effects in many departments of civil life.

At the anniversary meeting of the Society on the same afternoon Sir William Bragg, the president, took occasion to refer to the difficulties sometimes encountered by young men who are encouraged by financial grants to devote the most ingenious years of their life to scientific investigation and after living on incomes derived from one research trust after another sometimes find themselves, through no lack of competence, obliged to look in some new direction for their living. The man himself, said Sir William, must be as much the care of those who give him research work to do as is the work they set before him.

FEVER TREATMENT OF GONORRHŒA

From the Mayo Clinic Stuhler and Popp[1] report their observations on 100 completed cases of gonococcal infection treated by hyperpyrexia. The patient is placed on a rolling stretcher in a cabinet, known as the Kettering hypertherm, which is electrically heated. It is found that the rectal temperature can be raised to 106° or 107° F. in 60–90 minutes and can be kept at this level for 5–12 hours without ill effects. The patient is then removed from the cabinet, and his temperature returns to normal in about 90 minutes. Specially trained nurses and constant medical supervision are required for the treatment, during which the patient must not be left alone. Headache is a relatively common sequel but rarely lasts more than an hour. Vomiting is not uncommon, owing to the large amount of fluid (3–5 litres) imbibed. Tetany develops in only a small proportion of cases and can readily be overcome by intravenous injection of calcium gluconate with or without inhalation of carbon dioxide. Of the 100 patients, 68 were men and 32 women; 45 had an uncomplicated urinary infection, while 55 had some complication such as arthritis, prostatitis, urethral sinus, peri-urethral abscess, seminal vesiculitis, epididymitis, inflammatory disease of the pelvis, bartholinitis, pyelitis, or cystitis. The average duration of the infection before the fever treatment was three months, and the number of exposures to heat ranged from two to twelve, the average being six. Of these 100 patients, it is stated, 92 were cured, in an average period of three weeks, and the other 8 all showed improvement.

HARRY PRESTON MEMORIAL FUND

Since the death of Sir Harry Preston the wish has been expressed in many quarters that some fitting memorial to him should be provided. We have received from Lord Decies, chairman of a committee formed to give effect to this wish, a tribute to Sir Harry which points to his endearing qualities and provides excellent arguments for the erection to him in Brighton, where his work was done, of a tangible and permanent memorial. The committee has decided upon the addition of a new wing to the Royal Sussex County Hospital, to be known as the Harry Preston Wing, and there could be no better testimony to Preston's worth, for his name is associated with all the charitable causes of the neighbourhood. Indeed, by his own activity, he raised some £100,000 for the hospitals, while the Royal Sussex Hospital was his special care. We learn that to meet the urgent need for building the new wing the sum of about £25,000 will be required. This may be a large sum, but it is only a quarter of the amount that Sir Harry himself raised in his lifetime, and the committee feel confident that the total should be reached; already many of a vast circle of friends in the sporting and theatrical worlds have promised support.

HOSPITAL LIBRARIES IN IRELAND

By the statutes governing the administration of the funds accruing from the Irish Hospitals Sweepstakes the Minister of Local Government in the Irish Free State is empowered to make grants for the purpose of establishing and maintaining libraries in hospitals. The Hospitals Commission, having studied the question, recommended that a capital sum of £10,000 should be devoted to this end, and the Minister, having approved, has invited the Associated Hospitals Committee to help him in forming a committee of management of the library fund, the members of the committee to hold office for three years. He suggests that it should be the duty of this committee to create public interest in and attract support to a hospital library service; to induce hospital authorities to establish libraries in their respective hospitals; to make grants of books from a central book depôt which would be under the management of the committee. The grant of £10,000 is to cover three years. When the service has been established and extended to all the voluntary hospitals and sanatoriums, the committee may consider the feasibility of expanding the service to meet the needs of patients in the rate-aided hospitals and infirmaries. The proposed service is to be regarded as experimental in character, and its functions should be largely persuasive toward the hospital authorities. Our Dublin correspondent remarks in comment on this deserving scheme that the greatest lack of books is felt in the public institutions, the voluntary hospitals being probably fairly supplied.

St. James's Hospital, Balham.—The new nurses' home and the X ray and massage departments at this hospital were opened on Nov. 27th by Sir William Collins. The new home has accommodation for 43 nurses and includes a complete training school.

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[1] Stuhler, L. G., and Popp, W. C.: Urol. and Cut. Rev., 193[illegible] xl., 639.

PROGNOSIS

A Series of Signed Articles contributed by invitation

CXXII.

PROGNOSIS IN PLASTIC SURGERY

In plastic surgery prognosis must often be considered in relation to factors other than physical results. This branch of surgery is directed towards the elimination of a defect or disability, however caused, of which the psychological aspect may have assumed great importance. Occasionally the improvement after operation in a patient's mental outlook is even more pronounced than is his physical improvement. This is quite explicable when the original disability has been of such a nature as to prevent the patient from taking his proper part in social life. Whether or not the psychological trauma is always commensurate with the physical defect is of no import; what is of import is that mostly this trauma could have been prevented or at least minimised by early elimination of the physical lesion.

Patients presenting themselves for repair or reconstruction fall into two main classes:

(1) Those suffering from congenital defect.

(2) Those suffering from acquired conditions, whether as the result of accident or disease.

In these two main groups the prognosis is determined by different factors, and it is therefore desirable to consider them separately.

Congenital Defects

The commoner conditions falling in this group are: (*a*) cleft lip and/or palate; (*b*) moles and nævi; (*c*) limb conditions, syndactyly, absence of digits; (*d*) other malformations of face, facial cleft, abnormalities of the ear.

CLEFT LIP AND/OR PALATE

The two main desiderata in this group are that both the appearance and the speech shall be as nearly normal as possible.

Unilateral clefts.—Where there is a partial or a complete unilateral cleft without *involvement of the alveolus*, it should be possible to reconstruct the lip so that at worst there is only a slight inconspicuous vertical scar. The red margin should be regular, and should conform to normal contour, and it should not be possible for an unskilled observer to perceive that the patient has at one time had a cleft lip. To obtain a result of this order it is usually necessary to undertake a series of operations. The first of these takes place between three weeks and twelve months, and the others follow at intervals of between six months and two years. The primary repair is concerned mainly with the restitution of continuity of the orbicularis oris and with the reposition of the alar base into its correct position. This operation may leave some irregularity of the lining of the nostril, together with a slight droop of the anterior end of the alar margin on the affected side. At the same time the mucocutaneous junction may be too regular—i.e., it may present an unbroken curve from side to side. Occasionally it is possible to eliminate all these defects at the first operation, but more frequently it is desirable that they should be left for subsequent cure. This series of operation should be completed before the child reaches the age of five.

In those patients in whom the cleft involves the alveolus, the occurrence of nasal deviation is likely, since the premaxilla carrying the septum usually rotates away from the cleft. It is desirable, therefore, to carry out the primary repair as early as possible, so that the normal action of the orbicularis can swing the premaxilla back into its correct position whilst it is still plastic. Early reposition either eliminates or materially reduces the amount of bony deviation which results if the septum is allowed to remain displaced. The longer the delay the greater is the fixed distortion of the nose, and the more extensive are the measures necessary for its correction.

Bilateral clefts.—When the lip cleft is bilateral it should be treated as two separate unilateral clefts unless there is involvement of the alveolus. Subsequent operations to restore the correct line of the red margin will almost certainly be necessary.

When a bilateral cleft involves the alveoli there will often be forward rotation of the premaxilla and the prolabium together with the relative lack of development of the lateral elements of the lip. This may mean that it will be necessary at the first operation to incorporate the prolabial skin in the lip. Since this skin belongs to the columella and to the vestibular floors the tip of the nose will tend to be drawn down. As soon, therefore, as the normal mechanism of the orbicularis has corrected the rotation of the premaxilla, it is desirable to eliminate the prolabial skin from its participation in the lip covering and to replace it in its correct position at the base of the columella. This will tend to allow the nasal tip to develop into a normal forward position. The prognosis in these patients is not quite so good as it is in those with the unilateral condition. The nose will tend to be wide and somewhat flat at its tip, though it will be quite central. The correction of these defects is a slow and tedious process, and is seldom completed before the age of six to ten years.

When the alveolus is involved in any cleft it is unlikely that dentition will be normal in spite of early replacement of the bony elements in their correct position. A partial alveolar cleft may result in the absence of only one lateral incisor tooth, or perhaps its replacement by a somewhat rudimentary tooth. When there is a bilateral alveolar cleft it is only rarely that it is possible to make use of the central and lateral incisors. These tend to erupt very irregularly, and are frequently directed inward towards the tongue. It is usually necessary to remove them and replace them by a small denture. This denture often enables an otherwise retroposed lip to be supported in a forward position, and the resultant improvement in appearance more than compensates for the disadvantages of having to wear an artificial plate.

Cleft palate.—When the palate is cleft the chief essential is that an efficient nasopharangeal valve shall be created in order that speech may be normal. There is a multiplicity of operations designed to effect this closure, and the choice of any particular one will depend entirely upon the condition present in any individual patient. It is found, however, that if an efficient closure can be obtained before the child learns to speak—i.e., before the twelfth month—a high proportion of children will develop normal speech. Many of them will have the usual "cleft palate speech" when they first begin to produce sounds, but these defects will disappear spontaneously by the age of three and a half to four years. It may be desirable to give them the assistance of a speech trainer from the age of two and a half years onwards; but there is some diversity of opinion about this. Some authorities hold that the resultant speech becomes very artificial. Probably the question will have to be decided afresh for each patient. It must be remembered that the essential part of every palatal repair is the soft palate. This must be sufficiently mobile to enable it to effect complete closure of the nasopharangeal opening. If in the construction of such a palate it is found impossible to close the defect in the hard palate without jeopardising the soft palate closure, then the anterior perforation should be allowed to remain. It can be closed subsequently by a small dental plate. This may be difficult to fix when only the temporary teeth are present, and thus it may not be possible to assess the final speech result until the child is over twelve. In most patients, however, unless a previous operation has been unsuccessful, it is possible to effect complete closure of both the hard and the soft palate.

Adult patients.—The patient who is brought for a palatal repair when childhood has passed presents a more difficult problem. It may still be possible to construct an effective nasopharangeal valve, but this will not necessarily result in good speech. In all these patients a long course of speech training is essential. Poor speech has become a fixed habit, and the provision of an efficient speech mechanism is valueless unless the patient is taught how to use it. There is one type of patient who makes facial grimaces in an endeavour to close his nares anteriorly; it is very rarely that he can be taught to speak clearly. There is another type who does not appear to be able to distinguish differences in sound; apparently he does not realise the difference between the sounds that he produces and the normal, and, worse still, he can seldom be trained to do so. Finally, there is the patient whose speech is reasonably good though he has an unrepaired cleft. In spite of such an apparently promising start it does not always follow that a good operative repair will result in perfection of speech. In considering an operation on this patient, therefore, it is wise to point out that the only advantage which can be assured is an increase in comfort during eating, though speech may, of course, be considerably improved. It may be wise to compromise by prescribing a small dental plate which will correspond to the extent of the hard palate only.

MOLES AND NÆVI

When moles and nævi occur on the face they may be such a disfigurement as to preclude the unfortunate patient from all ordinary social contacts. They are frequently very heavily pigmented and hairy. Their removal should be undertaken before the child has reached an age at which he is conscious of their presence. There can be but few more pathetic sights than the small child, half its face covered by a black hairy mole, who has not the courage to allow a stranger to see him; on the other hand, there are few joys in surgery comparable with that of watching the same child realise that he is being restored to normality. Not even the thought of "another operation to-morrow" is sufficient to depress him for more than a moment.

Nævi.—The operation required for the removal of nævi is nowadays much less radical in many cases than it was before radiotherapy became available. Cavernous nævi in particular respond in a miraculous fashion. When skilfully treated by radium the resultant scars are usually minimal, but if necessary replacement of these can be carried out when the vascular lesion has been cured. In capillary nævi the results of radiotherapy or of coagulation treatment are less satisfactory, and it is usually necessary to replace the whole of the affected area by new skin. In many cases this is a long and tedious process. It can be commenced about the age of three years, though of course a small nævus which would respond to direct excision and re-suture can be dealt with at a much earlier age.

CONGENITAL LIMB CONDITIONS

Syndactyly is one of the conditions which, as a rule, readily lends itself to repair; only if there is complete fusion of the phalangeal bony elements can little be done. This, fortunately, is more rare than fusion of the skin elements only, with comparatively normal phalangeal development. Fusion of one or more of the terminal phalanges (with which fusion of the nails is usually associated) does not as a rule contra-indicate operation. The repair can be begun at any time after the child's nutritional advancement is established. It is not usually desirable to operate on more than two clefts at the same time, since the difficulty of satisfactory fixation is increased by doing so.

Absence of digits may sometimes be made good by the construction of a skin-covered bony protuberance. Occasionally it is possible to endow this with movement by the utilisation of existing tendons, but even if this is not possible the new digit should be arranged in such a position that a normal finger can be apposed to it and the hand thus made prehensile.

OTHER MALFORMATIONS OF THE FACE

Absence or malformation of the external ear is fairly often encountered. If the patient is a girl it is questionable whether any endeavour should be made to construct a new ear. It is always wise to undertake the repair of minor defects, but since the pinna can be covered by hair there is, as a rule, no reason to subject the child to a long series of operations if the ear is completely absent. In the case of a boy there is no possibility of disguise, and unless he is prepared to wear a prosthesis (which may be lifelike but which nevertheless requires constant attention) every endeavour should be made to construct an entirely new ear. Improvements in technique are giving much more satisfactory results, though it must be borne in mind that many operations will be necessary, and that even then a wholly normal appearance is unlikely. Since, however, it is impossible for both ears to be seen in their entirety at once, this defect is not so great as it would otherwise appear. The reconstructed ear seen by itself will be reasonably good, and there will be distinct improvement in the symmetry of the face when seen from in front.

"*Bat ears*" do not respond to any of the so-called corrective head-bands, &c., but their correction by surgical means is relatively simple, and may be undertaken at any time after the age of two years.

Summary

The great majority of congenital lesions or defects can be eliminated or materially improved. In most instances treatment should begin in early life. This will assure the best possible result from the physical standpoint, and will reduce to a minimum secondary psychological traumata.

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(*To be concluded*)

SPECIAL ARTICLES

THE BIOLOGY OF SOCIAL LIFE*

By Sir Walter Langdon-Brown, M.D., D.Sc., F.R.C.P.

EMERITUS PROFESSOR OF PHYSIC IN THE UNIVERSITY OF CAMBRIDGE

Man, being a social animal, will be subject to the biological laws which govern life in general, and gregarious animals in particular. Looking at the film made by the late Dr. R. G. Canti of the growth of bone under a microscope, one is struck by the ceaseless activity of the cells, busily engaged in building round the girders which are shooting out in all directions. Watching their apparently purposeful behaviour, it seems that when we say "my body," we are speaking rather as a king does when he says "my country" or "my subjects." Indeed we know even less of the behaviour of our constituent cells than he does of the lives and deaths, the hopes and fears, the hates and loves of those over whom he rules.

It is a biological axiom that life started as a single cell, and still continues to do so. The most striking thing about a living cell is its incessant urge to assert itself as strongly as its environment will permit. This is the real struggle for existence. It is an extraordinarily interesting fact that if embryonic kidney cells for instance are grown by themselves in a suitable medium they appear according to some observers to become positively malignant. Put some embryonic connective tissue into that medium and the kidney cells promptly conform to type. They have to learn to adapt themselves to the needs of their neighbour. Maudsley wrote:

> "It is not easy for the individual to realize how much he owes to the restraints and supports of the social fabric in which he is an element, and which, like the atmosphere, always and insensibly surrounds him. There could not be a greater danger to the balance of any mind than to be exempt from the bonds and pressure of the surrounding social system."

We see his contention illustrated in the United States to-day where, although one is particularly conscious of the pressure of herd opinion, there are outbreaks of gangsterdom chiefly among imported aliens who have been set free from their own environment but have not assimilated themselves with the new, remaining Ishmaelites within it. It is one of the drawbacks of these vast new suburbs, mere dormitories, which radiate out like huge tentacles from London destroying the countryside as they grow, that they offer so few opportunities for communal life and a social background.

The whole story of many-celled organisms is one of mutual adjustments between the different tissues, each trying to do its best for itself within the limits of those adjustments. The first stage in evolution was a number of single cells herding together for mutual support but each doing the same work. The next stage was one when groups of cells did different work. In evolution there are two parallel processes —increasing division of labour and increasing cöordination between the different parts. The latter was achieved under the control of the central nervous system. A strong central government is needed to help to keep order, and no high degree of differentiation is possible in the animal body without the control of a centralised nervous system which has gradually acquired an increasing predominance. Just as the cells struggle to achieve the best they can within their environment, so the individual they form struggles either to do so, or to change its surroundings. The course of successful evolution has been to increase, not the size of the cell or of the individual, but of the unit. The unicellular became the multicellular; isolated individuals became a community. For the mammal this was a much longer, more painful, and more dangerous path than for the insect, just because its brain was capable of so many different reactions. This applies in an altogether special degree to man.

Laws of the Herd

The first law is "Thou shalt not." Just as the development of the higher nerve centres checks instinctive activities, so the development of communal life must restrict the freedom of the individual. Man has not found this easy. Philosophers may lament this, theologians may attribute it to original sin, but the biologist will remember that the cells of which he is composed did not find it easy to sink their individuality in that of the organism. A clever woman once said to me of her son, "He hasn't fused his ancestors yet." It was profoundly true. Yet evolution continues to demand that we shall fuse our ancestors, that we shall enlarge the unit. The family becomes the tribe, the tribe the small nation. The heptarchy becomes the monarchy, the nation an empire. And all the time the individuals within the unit are clamouring for self-expression, the smaller unit within the empire for self-determination. Sir Arthur Keith has called attention to two opposing tendencies in life—one being the general demand for enlargement of the unit, the other, the species-making impulse which attempts to segregate a particular type. The first in human life makes for internationalism, the second for nationalism.

The recent fierce fanatical outbreak of nationalism becomes comprehensible as a frightened response of the species-making segregating impulse against the resistless imperious demand of the ever-widening evolutionary process towards internationalism. More and more nations become interdependent, the health and prosperity of one affecting the health and prosperity of all. Just as the revolt of the members against the belly became the defeat of all, so war has become a process in which all can lose but none gain. To win a war to-day is a greater disaster than it formerly was to lose one. Norman Angell pointed that out years ago; war would have been impossible if man were a rational animal. But to claim that man is a rational animal is to express a wish rather than to state a fact. Man is not a rational animal, though he may be in process of becoming so. But though reason is not the parent of many of his actions, he seeks reason for their god-parent, by trying to find reasonable explanations for what his emotions drive him to do. He prefers to ignore the savage ancestry of his unconscious mind. The outlook of increasing internationalism which we hoped for after the war is being replaced by a mentality resembling that of the Dobu islanders in Melanesia, whose slogan is "if your yams flourish, mine will rot." In many respects popular ideas and ideals are undergoing a perilous repression. Here may I draw an analogy from Freud's doctrine concerning such repressions? If this species-making impulse is, as I think, repressing the evolutionary trend towards the expansion of the unit, one might expect that trend to take an abnormal course. The building up of vertical walls between nations is being countered by horizontal lines of cleavage which threaten to divide Europe into fascists and communists. This to my mind represents the pathological form of internationalism resulting from repression of its normal expression.

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* The Maudsley lecture to the Royal Medico-Psychological Association on Nov. 25th, 1936 (abridged).

Just as the nervous system must be developed to allow of sufficiently rapid coöperation between the various organs of the individual, so means of rapid communication are essential to coördination of the complex civilisation of to-day. It has been truly said "civilization *is* communication." One of the many factors in the downfall of the Roman Empire was the inadequacy of the methods of communication for the size it had attained. And so it suffered the fate of the mesozoic reptile. This difficulty does not obtain to-day. Means of communication could be excellent; so the forces which would oppose evolution offer artificial barriers to free communication—passports, visas, and the like. And all the time the development of aviation is making frontiers as obsolete as the octroi and the toll-gate. Indeed the great ease of communication by wireless is having some interesting effects. At first the leader could address personally all the members of a small tribe. The Greeks considered that the size of a city state was limited by the number of freemen who could assemble in a given place. Then as States increased in size various methods were evolved of appointing representatives of large groups to act for them. In democratic countries political power gradually passed into the hands of such representatives. But now the ruler can speak by wireless to a vast audience, which has facilitated a return to absolutism. We learned in the general strike of 1926 what a powerful weapon wireless placed in the hands of government, and dictators have not been slow to avail themselves of it.

Stages in the Evolution of Society

There are three stages in the evolution of human society; to the first the name of co-consciousness has been applied, or, as Aldrich calls it, "a collective unconscious morality inherent in the laws of life," so far as they can be appreciated. At this stage man is bound with a hypnotic completeness to every tabu. If he breaks a tabu he may even die, apparently from the sense of sin and isolation he experiences, as a bee dies when separated from the swarm. Rivers's studies of the Melanesians convinced him that they seemed to recognise instinctively, using that much-abused word in the strict sense, what the general feeling of the group was and what definite line of action it should take. Such communities are stable precisely because they are not individualised. The avoidance of collisions between foot passengers in crowded pathways, thought reading and social tact he regarded as vestiges among us to-day of that social common consciousness.

In the second stage individuals begin to emerge, and it is interesting to the medical profession to observe that it is the witch doctor, the magician, who is the first to do so. As Gerald Heard says, probably the proto-individual realises that he is different from the herd before it becomes apparent to them. So he adopts a rôle which is impressive to the onlooker and suggestive to himself. But he is soon conscious not only that he is alone, and that he can never go back, but that there is enmity between him and the tribe, which spares him because it fears him. He evolves into the priest-king and, as Freud says, the elaborate tabus by which the lives of the priest-kings are made little better than a pestered imprisonment, are the outcome of a profound subconscious jealousy based on a feeling of fundamental difference in quality between the group and this particular individual. Frazer inquires, why did it become customary in many parts of the world to put divine kings and other human gods to a violent death? It was because they feared that, if they allowed him to die of sickness or of old age, his divine spirit might share in the weakness of its bodily tabernacle, or perhaps perish altogether, thereby entailing the most serious danger on the whole body of the tribe. Whereas by putting him to death while he was yet in full vigour of body and mind, they could transmit his still uncorrupted powers to his successors. This is the real origin of the divinity that doth hedge a king, who was at first a sacrificial object—the central object of fertility rites on which the survival of the tribe depended. But as the evolution of human society proceeds the individual learns to outwit the tribe, and to substitute others or even an image or symbol for his own body, which was intended for sacrifice. Another man or an animal died in the king's stead. The King is dead, long live the King. Such a change made for absolutism. The divine right went on without its distressing consequences.

The conception of kingship makes much more intelligible the ascription of divine powers and the final deification of the Cæsars, for this was merely a reversion to an earlier mode of thinking. It also explains their frequent assassination, which must often have seemed a religious duty to the assassin. Even to-day, in many parts of the world, assassination of the ruler is too often regarded as a political argument, and lunatics who are admittedly prone to revert to primitive methods of thought find a particular fascination in it.

The king at this stage in his attempts to outwit the tribe realises that what they want is physical plenty, and so he leads them out to conquest. A study of epic literature reveals that they are the record of a short violent, vivid period in the advance of human culture, an invariable stage, the heroic age. There is a transition from the cult of the totem animal to the heroic cult. An heroic age is an almost invariable characteristic of the movements of people and comes to an end with their re-settlement. We can therefore see how inevitable it is, even in modern times, that a king who claims divine right and leads his people out to battle unsuccessfully should lose his crown, and often his head with it.

The struggles between the kingly and priestly aspects of rulers are typified in the Middle Ages by the recurring conflicts between Emperor and Pope. They were seen in Egypt in the conflict between the "modernist" Aknaton and the priests of the temples. If the priest wins, he puts a boyish usurper on the throne, whom he can control. Such was Tutankhamen, who succeeded Aknaton. Seen from this angle what a fascinating story the history of the Old Testament becomes. Moses followed by the victorious raiding general, Joshua; the struggles between Samuel and Saul; the successful claim of the priest to decide certain things against the king, as when Samuel hewed Agag in pieces before the Lord, but against the wish of Saul; Saul, bewildered and outwitted by superior intelligence, reverts to fertility rites and consults the witch of Endor, and finally Samuel places the boyish usurper on the throne—David.

Originally only the king was regarded as having a future life, and therefore as the only one to possess a soul. But as individualism grew and spread, there was a similar demand from many humbler beings for immortality after death. Hence arose the mystery religions such as those of Osiris in Egypt, Orpheus in Greece, and Mithras in Persia, each of which purported to teach man how to attain to a future life. The spread of the Roman Empire imported these ideas into Rome itself, where, especially in the second century, they contested fiercely for supremacy with Christianity. And no impartial observer can deny that Christianity in winning absorbed some of the tenets of its rivals. St. Paul sometimes used the exact phraseology of Osiris and the Eleusinian mysteries, and hymnology, particularly Cowper's, is steeped in Mithraism. At the co-conscious stage the individual is satisfied with the continuance of the tribe, and fertility rites satisfy his religious aspirations. But at the stage of *individualism he demands personal immortality.* Fertility rites are regarded with grave disfavour and even disgust, and man's religious aspirations are fixed upon the next world.

Conscious Coöperation

And so individualism spreads and grows. In this second stage, as Aldrich says, "the group represses egotistic tendencies by forcibly imposing a conventional morality." But as more and more individuals become self-conscious, the state becomes more unstable. It has been said that civilisations do not really decay, but burst from the tension produced by the rapid expansion of individualities within its borders. This is the present and urgent problem of civilisation—to give scope for individual development, and yet for the individual to fit into his place as a part of a much larger whole. It is Aldrich's third stage—not yet reached by any society but recognised by an increasing number of persons—a stage in which the numbers of the group consciously coöperate for the common good, and not merely *instinctively as in the social insects.*

Heard emphasises the point that whereas the first stage is accompanied by a fertility religion, while the second or individualistic stage is characterised by a religion in which personal salvation and personal immortality are the keynotes, neither of these is adequate for the third stage of conscious coöperation. Harold Nicolson considers that a struggle for world power creates conditions under which a new religion arises. And to-day, *far removed* as we are from a new world state, a new religion of the state as an object of worship is rapidly growing up. In Germany the old gods of Valhalla are being decorated with the armour of knighthood, just as during the war the wooden image of Hindenburg was erected as a totem figure into which nails were symbolically driven. The anti-religious attitude of Russia is upheld with a fanatical and intensely religious fervour, and all over Europe fascism and communism are fiercely competing religions.

Yet amid all change the human mind always desires to crystallise what should remain a living force, heedless of biology which teaches that this is impossible. A living thing must always be changing; to crystallise is to kill the spirit and merely to preserve the letter. The human mind works with symbols, and as time goes on it is apt to take the symbol for the substance, instead of regarding it as an attempt, suited to the mentality of the age, to give expression to ideas, otherwise intangible. Nowhere is this more clearly seen than in a comparative study of religions. *With the* flux of time the old symbolic representation becomes unacceptable and often frankly repulsive to many individuals in subsequent generations. Yet to many others they represent the faith delivered once and for all, which it is sacrilege to question.

I would suggest that the real reason why this influence which the dead past continues to exert over the living man is so powerful, is that he carries with him, still living, the genes of his dead ancestors.

Thus is our psychological evolution limited and retarded. But unless we can overcome this difficulty *sufficiently to adjust to the imperative needs of new* conditions, the issue for civilisation is scarcely in doubt. Modify or disappear is the inexorable sentence of evolution when the organism is confronted by a changing environment. Man feels the peril of change and has sought to build breakwaters against the tide by means of written constitutions and printed creeds. The war was but the traditional seventh wave which smashed breakwaters that were already in peril. And in the deluge which accompanied and followed it man has lost confidence. Many things which he imagined were founded on rock, he discovered were mainly built on sand.

A curious symptom of the prevailing disillusionment is the turning of the white races to the coloured ones for artistic inspiration—pictures of the South Sea Islanders, carved wooden images from Tahiti, jazz music, negro spirituals. The world resounds with dark laughter, as the white man uneasily shifts the burden on his shoulders. Some of the reasons for this disillusionment and loss of confidence are obvious; others are more deeply seated. Man's reaction to nature varies with the control which he feels he has over it.

Man Less Confident

Recently, man has become rather overawed by the universe in which he finds himself. He can hardly comprehend the vastness and emptiness of the interstellar spaces, or the minuteness of the electrons within the atom. Life trembles, as it were, in a narrow zone between intolerable heat and intensest cold; if it wavers on either side, it ceases to be. It can only exist in association with an atom which holds twelve electrons within its orbit. Staggered by such facts he is too apt to forget that the most marvellous of all matter is the nerve-cell, and that, so far as we know, he possesses the most highly developed system of such cells, whereby he can perceive and interpret the phenomena by which he is surrounded. The astronomer in H. G. Wells's *story realised that he was greater than the comet* which was presently to destroy the earth and him with it, because he knew what the comet was going to do, and the comet did not.

But man has become much less confident of the control which reason can exert over his instincts. It required the convulsion of a great war abruptly to remind us that if we had subdued nature externally, internally, in ourselves, she is as cruel and bloodthirsty as ever. Man has acquired a control over machines without acquiring anything like a corresponding control over himself. He does not even appear to be able to control satisfactorily something he has created for his own convenience—namely, currency. He has a fatal aptitude for applying his discoveries to destructive ends. Aviation has been described recently as "the discovery which took the wrong turning" and that is typical of much.

Evolution always offers a higher and a lower road: to a form which involves an expanding, more complex unit, or to one which degenerates to a lower level, though more consonant with the capacity of its components. This is what makes present-day conditions so disturbing. Whole nations which apparently feel unable to maintain the ideals that we regard as the higher ones actually seem to gain a new hope and a new faith by departing from them. The new level is more suited to their evolutionary development, and they are more comfortable in it. Depreciation of ideals, like depreciation of currency, seems to give them a new stability.

In this process, no ideal has suffered so severely as that of liberty. The segregating, species-making impulse has for the moment the upper hand; in three-fourths of Europe liberty is now regarded as a curse, tyranny as the way of salvation. It may be that the old ideas of liberty were too negative; it may well be that the population of large areas of the globe are not yet fit for it. We feel it about India, so we need not be surprised if some European countries feel it about themselves. It is certainly the fact that nineteenth century ideas of liberty were too much bound up with a policy of laissez-faire which led to social injustice.

Liberty and the State

It is inevitable that the State shall take an increasing part in planning the lives of its individual citizens. There are two parallel processes at work—increasing division of labour and increasing coördination. The evolution of large industries illustrates both of these. Indeed, the division of labour in a large factory has reached such a pitch that in many occupations craftsmanship is dead and the workman has become a robot. In his presidential address before the British Association Sir Josiah Stamp pointed out that when the time span of important change was considerably longer than that of the individual human life we enjoyed the illusion of fixed conditions. Now the time span is much shorter, but our attitude of mind still tends to regard change as the exceptional and rest as the normal rather than the converse. But these alternative attitudes make all the difference to the accommodating mechanisms we provide. In one case there will be well-developed tentacles, grappling irons, anchorages, and all the apparatus of security. In the other society will put on casters and roller bearings, cushions and all the aids to painless transition. Thus the written constitution of the United States, devised for the "horse and buggy" days acts as a serious drag on adaptations to entirely different conditions. A scientific study of the effects of scientific discovery itself on both capital and labour is urgently needed in order to render the change from obsolescent to new methods as smooth as possible.

We are faced with the problem that in all Western industrial countries the population will shortly become stationary and then noticeably decline; and is it not probable that after the enormous increase of population in the nineteenth century there should be a lull? I do not know whether anthropologists are prepared to explain the outburst of fertility in north-eastern Europe in the early centuries A.D. which swept aside all barriers, inundated the Roman Empire and dissolved it into fragments. One can only vaguely visualise the enormous pressure of population that initiated these huge waves of migration. But they did not continue indefinitely, and the population of England was neither great nor rapidly increasing in the days of Queen Elizabeth, which was certainly not an age of decadence. If our industrial system really depends for its success upon an increasing number of individuals to produce an increasing amount for an increasing population to consume, it is bound to crash sooner or later. Fortunately Sir Josiah leaves us a loophole by saying that the effects of a static population can be mitigated if the per-capita income is increasing. Because as the parts of the globe inhabitable by the white races fill up, the population will inevitably become static. Whether the present lull is entirely due to contraceptive practices, or whether there is also some fall in natural fertility it is impossible to say. It is gratifying at any rate to be told that a higher standard of wealth may compensate for a falling population to some extent, for I believe that this higher standard and more settled conditions would lead to the production of more children to enjoy them, and thus with minor fluctuations the balance would be maintained.

Conclusion

I hope I have made clear what seems to me the present dilemma. The first biological stage of a community is held together by tabus and fertility rites; individuality is at a discount. In the second, individualities develop and the religious trend is towards individual salvation and personal immortality. The increasing tendency towards individualism becomes incompatible with a highly organised state which a complex civilisation requires, for as Maudsley said, the social organism of which the individual is an element only exists by some suppression of his purely self-regarding impulses. The evolutionary demand for an enlargement of the unit excites a defensive reaction towards national segregation. To effect this, freedom of trade, freedom of exchange, freedom of intercourse, and personal freedom have to be vigorously suppressed. But although human beings in a community are the equivalent of the cells in an organism, they have achieved self-consciousness and individuality. If, therefore, the repressing force upon their originating and creative powers is strong enough these powers will die and degeneration will follow. Laissez-faire would lead to disintegration and autocracy to mental and moral slavery. The solution can only be found by a method which gives adequate freedom to the individual life within a larger coördinated unit. Can we achieve it? Perhaps we are neither wise enough nor good enough. It is no more reasonable to blame the present epoch for its savage and infantile psychology than it would be to blame the brontosaurus for its tiny brain. Has this civilisation to go back to the melting-pot like its predecessors? If so, another will rise in its place. Of that we may be sure, though it is little consolation to us or to our children. In the past, when a civilisation has fallen, the rise of the next has been a matter not of years, but of centuries, until some new dominant blend could arise. We are therefore naturally concerned to see the civilisation of to-day conserved. If I could show the way, I might well claim the position of a beneficent dictator. All I am aiming at is to illustrate the truth of Maudsley's dictum.

> "The general law of development which governed the process during the unrecorded ages was the same law which is proved to have worked within the short compass of recorded time—namely, the law of the more complex and special development at the cost of the more simple and general."

The fault is in ourselves rather than in a malignant fate obscurely moving behind the scenes. Can we not hope that by remorselessly stripping off the labels from outworn symbols, by resolutely adopting reality principles, we may before it is too late realise the latent possibilities in human life, and recognise that the springs of happiness come from within. In the willing coöperation of free individuals for the common weal lies the only solution. Is this a contradiction in terms? I believe not. We are members all of one body.

GENERAL MEDICAL COUNCIL

WINTER SESSION, NOV. 24TH-27TH, 1936

Penal Cases Referred by the Dental Board

IN each of the following cases the Dental Board transmitted to the Council their finding that the dentist's name ought to be erased from the Register, and in each case the President, after deliberation in camera, announced that the Council had decided to direct the Registrar to erase the name.

The Case of Thomas Fielding Tracey, registered as of 1159, Argyll-street, Glasgow, C.3, Dentists Act, 1921, who had been summoned before the Board for having on three occasions been so far under the influence of drink as to be incapable of carrying out professional duties; and of having been convicted at the police-court of three breaches of the peace. The case had been reported by the Department of Health for Scotland. He had not attended nor been represented, and the notice of inquiry had been returned undelivered. He was not present on this occasion.

The Case of Thomas Gordon, registered as of 70, Park-road, Glasgow, Dentists Act, 1921, who had been convicted of theft on five charges, and sentenced to sixty days' imprisonment with hard labour. He had not attended the inquiry nor been represented; nor was he present before the General Medical Council.

The Case of Maxmillien d'Espiney, registered as of 18, Hertford-street, Balsall Heath, Birmingham, Dentists Act, 1921, who had been convicted of assault and of being drunk and disorderly. He had attended the Board's inquiry, and was present and addressed the Council on his own behalf. Mr. Harper laid the facts before the Council, mentioning that there were now 51 minor convictions against respondent.

The Case of John Knowles, registered as of Erving-terrace, Morecambe, L.D.S.R.C.S. Eng. 1910, who had been found by the Board to have committed offences in relation to a dental letter issued by the "Good Intent" Lodge of the Independent Order of Oddfellows Manchester Unity Friendly Society, claiming payment for work not in fact completed. He had not attended the Dental Board, and was not present on this occasion. The case had been reported by the Minister of Health.

The Case of John Henry Port, registered as of Post Office Cottage, Oare, Faversham, Dentists Act, 1921, against whom a number of similar charges had been brought in respect of dental letters issued by the Prudential Approved Societies to three separate parties. The case had been reported by the Minister of Health. Mr. Port had not attended nor been represented; and was not present before the Council.

The Case of Robert Moonie Smith, registered as of 96, Shamrock-street, Glasgow, W., Dentists Act, 1921, who had committed offences in reference to two dental letters issued by the National Approved Amalgamated Society and one by the London Midland and Scottish Railway (Caledonian) Servants Friendly Society. The case had been reported by the Department of Health for Scotland. Mr. Smith had not attended the inquiry and was not present.

The Case of Albert Charles Hellyer Taylor, registered as of Damgate-street, Wymondham, Norfolk, Dentists Act, 1921, for offences in connexion with a dental letter issued by the Prudential Approved Societies. The case had been reported by the Minister of Health, and Mr. Taylor had not attended and was not present before the Council.

The Case of Michael Henry Harte, registered as of 23, Eliza-street, Belfast, Dentists Act, 1921. This offence related to similar improper certification and claims for money for work not actually done, in respect of a dental letter issued by the Orange and Protestant Approved Society and another by the Presbyterian Health Insurance Society. The case had been reported by the Ministry of Labour, Northern Ireland. Mr. Harte had attended in answer to his notice, but was not now present.

The Case of Ernest Appleby, registered as of 139, South-street, Ponders End, Middlesex, Dentists Act, 1921, whose similar offences related to dental letters issued by the Royal Liver Friendly Society. The case had been reported by the Minister of Health. Mr. Appleby had attended, but was not now present.

Charges against Medical Practitioners

The Council then considered five charges of drunkenness and a charge of canvassing adjourned from previous sessions, and four new charges of drunkenness, without directing the erasure of any name from the Register.

AN ERASURE FOR ABORTION

The Case of Mrs. Laura Winifred Sanders Bliss (formerly Sanders, L. W.), registered as of 105, Harley-street, London, W.1, L.M.S.S.A. Lond. 1928, who had been summoned to appear before the Council on the following charge:—

> That you were convicted at the Central Criminal Court at its session commencing on June 23rd, 1936, of the following felonies, viz.: (*a*) Of conspiring with other persons to unlawfully use instruments or other means unknown with intent to procure the miscarriage of women; (*b*) Of using instruments or other means unknown with intent to procure the miscarriage of five women; and were in respect of the first above-mentioned offence sentenced to twelve months' imprisonment, and in respect of each of the other above-mentioned offences sentenced to three years' penal servitude, such sentences to be concurrent.

Dr. Bliss attended, accompanied by Mr. Herbert Aston, solicitor. Mr. Harper read the remarks of the Lord Chief Justice when sentencing respondent. Mr. Aston said that Dr. Bliss had specialised in gynæcology and obstetrics. She had been impressed by the tragedy of self-attempted abortion; the cases before the court had been in the actual process of evacuation when they had come to her, and she had not felt justified in turning them away.

Dr. Bliss went into the box, but the Legal Assessor pointed out that she could only give evidence of facts, and of facts which did not contradict the conviction. She was not allowed to read the statement she had prepared.

The Registrar was directed to erase her name.

OFFENCES AGAINST THE DANGEROUS DRUG REGULATIONS

The Case of Aymer Douglas Maxwell, registered as M.B., Ch.B. 1921, U.Edin., who had been summoned to appear before the Council on the following charge:—

> That you were convicted, after pleading guilty, of the following misdemeanours: (*a*) On Oct. 2nd, 1935, at the Ringwood Petty Sessions, of failing to enter in the required register true particulars in respect of a dangerous drug

> which had been obtained by you in the following cases: (1) Date of offence, July 20th, 1935; fined £1 or one month's imprisonment in default; (2) Date of offence, July 26th, 1935; fined £1 or one month's imprisonment in default, to run consecutively to the previous sentence; (3) Date of offence, July 30th, 1935; fined £1 or one month's imprisonment in default, to run concurrently; (4) Date of offence, August 3rd, 1935; fined £1 or one month's imprisonment in default, to run concurrently; (5) Date of offence, August 14th, 1935; fined £1 or one month's imprisonment in default, to run concurrently; all in breach of Regulation 11 of the Dangerous Drugs (Consolidation) Regulations, 1928. (*b*) On June 26th, 1936, at the Winchester Petty Sessions: (1) Of procuring a dangerous drug, date of offence, Jan. 31st, 1936; (2) The like (Feb. 2nd, 1936); (3) The like (Feb. 3rd, 1936); (4) The like (Feb. 5th, 1936); all in breach of Regulation 2 of the Dangerous Drugs (Consolidation) Regulations, 1928, and were fined £2 10*s.* in each case, or one month's imprisonment in default, to run concurrently.

Mr. Winterbottom said that Dr. Maxwell had hoped to be present, but had written that morning that he could not come. He laid the facts before the Council, and said that the Home Office had withdrawn Dr. Maxwell's privileges. Respondent had admitted that he was a drug addict.

Dr. J. W. Bone asked if there were any information where respondent was now and what treatment, if any, he had had. The President replied that they knew where he was. After deliberation in camera the President announced that the Registrar had been directed to erase Dr. Maxwell's name from the Register.

ALLEGED FALSE DEATH CERTIFICATION

The Case of Michael Deeny, registered as of Church-place, Lurgan, Co. Armagh, L., L.M. 1903, R.C.P.Irel.; L., L.M. 1903, F. 1932, R.C.S.Irel., who had been summoned to appear before the Council on the following charge:—

> That being a registered medical practitioner you were on July 21st, 1936, at the Lurgan Petty Sessions, convicted of wilfully making a false certificate concerning the cause of death of Gertrude McFladden, whom you attended in her last illness, and which you issued to James McCann of Lurgan under Section 20 (2) of the Births and Deaths Registration Act (Ireland), 1880, and were fined £5 and £5 costs or two months' imprisonment in default.

Mr. Hempson appeared for Dr. Deeny, on behalf of the Medical Defence Union. Mr. C. J. S. Harper called the Registrar-General of Births, Marriages, and Deaths for Northern Ireland. He produced the certificates given by respondent under the National Health Insurance Act and the death certificate and suggested that the latter could not be a true certificate in view of the condition of the patient as shown by the former.

The Registrar-General explained the importance of accurate death certification, especially with regard to cancer. The present case had been regarded as so serious that the secretary had decided to prosecute. In cross-examination he agreed that there was no question of mala fides and that respondent had been a justice of the peace for thirty years and had considerable local standing. He admitted that it was not always easy to give the primary cause of death and that the Northern Ireland form differed from the present English form. If the present English form had been in use the return "Septic tonsils. Cancer" would have been correct. If cancer were not a septic disease it could not set up septic pneumonia without additional sepsis in the tonsil. In many cases his department made an inquiry and asked the practitioner to amplify his statement; that had not been done in this case. There had been nothing on the face of the certificate to suggest need for inquiry. On every National Health certificate cancer had been mentioned. Printed at the bottom of the form were the words "This certificate must not be used for burial or insurance purposes." Nevertheless, indirectly, the information contained in that certificate, perpetuated in the death register, might be used for insurance purposes. The word "septic" in the certificate seemed to have been written over the beginning of the word "carcinoma."

Captain Herbert Langton, of the Salvation Army, produced the proposal form for the life insurance of Mrs. McFladden, made on July 15th, 1935. It stated that she had had no medical advice for five years. The proposal would not have been accepted had cancer been mentioned then, and the money would not have been paid, without inquiry, if Dr. Deeny had certified cancer as the cause of death.

Cross-examined, he agreed that no inquiries were usually made; they relied on the word of the proposer endorsed by their representative, who lived in Lurgan and was paid commission. This representative had canvassed the case in the ordinary way of business; it was not his business to verify statements. The society had paid out on the policy. There was no writing of respondent's on the form and it was not their custom to make inquiries from the doctor. The sum assured was £17 2*s.* for burial expenses. Their representative had seen the assured on July 1st, and stated that she seemed to be in good health and of strong constitution; he knew now that certificates for cancer had been issued from June 23rd.

Dr. Deeny testified that he had been a magistrate and representative of Lurgan on the county council for many years. He was medical referee for many insurance companies and had been a member of the Representative Body of the British Medical Association for many years. He had a large industrial practice. Deceased had been on his panel since the panel started and was well known in the district as she had been housekeeper to the Monseigneur of a large Catholic parish. She had first attended for enlarged glands and high blood pressure; he had made a definite diagnosis of cancer on June 23rd, 1935. After that she had left the priest's service. Her condition was well known in the locality very shortly after that; everybody knew she had cancer. He had not the least idea she was insured. He had consistently certified her as suffering from cancer, and had attended her constantly. He had taken precautions against secondary sepsis, and she had kept clear until a few weeks before her death when she had ceased to be able to gargle or to swallow, and had finally developed septic pneumonia. The certificate of death had been given to her brother in the surgery. The corrected error in the certificate was "sceptic" for "septic"—not carcinoma at all. He had in fact thought of putting "cancer and septic pneumonia" but had realised that the Registrar would then ask where the sepsis came from. The instructions said he was to put the organ where the sepsis originated so he had done so. He had been meticulously careful in writing the certificate.

The Legal Assessor suggested that this evidence merely went to show that the conviction was wrong, and so was inadmissible.

Re-examined, he said he had never been consulted about any insurance; if he had been, he would forthwith have said she was not insurable and would have mentioned cancer, for everyone knew about it. He had not mentioned cancer in the death certificate because it was not the direct cause of death.

In reply to Mr. Gamgee he swore the brother had asked him nothing whatever about the form of the certificate.

In reply to Mr. H. L. Eason, he said he had signed very many certificates, including many for cancer, and had considered this case with especial care.

In reply to the President, he said he did not remember leaving out cancer in any other certificate of this kind.

In reply to Sir Thomas Miles, he said he had derived no profit or gain from the case or certificate.

In reply to Mr. Bishop Harman, he said the 21 health certificates had been given out at his house to some member of the family.

Mr. Hempson, addressing the Council, asked whether it was conceivable that his client, with nothing to gain and everything to lose, should take the risk of being party to a mean fraud to enable a man to get payment of an insurance policy which ought never to have been proposed. It had been so held by a lay tribunal, and the Council was not therefore trying the offence, but the measure of its condemnation must be influenced by the degree of infamy. He read a number of testimonials.

Mr. Harper recalled the attention of the Council to the conviction.

The President announced that the Council could not avoid the conclusion that the certificate issued by respondent was of the type stigmatised in para. 1 of the Warning Notice issued by the Council as "untrue, misleading, and improper." The Warning Notice specifically mentioned certificates under the Acts relating to death. The Council regarded his action as a serious breach of the trust which Parliament had confided to members of the medical profession. They had listened to the description of the circumstances under which the certificate had been given, but they did not regard them as affording any excuse for respondent's laxity in giving it. They took a grave view of carelessness in the issue of certificates required by public authorities. But they were prepared to believe that he had acted, not from any perversity or desire to falsify, but from a mistaken view of his duty and an error of judgment. Taking that into account, they had not directed the Registrar to erase his name.

CHARGES OF ADULTERY

The Case of Dominic Francis Curran, registered as of 150, Muswell Hill-road, London, N.10, L., L.M. 1913, R.C.P.Irel.; L., L.M., 1913, R.C.S.Irel., who had been summoned to appear before the Council on the following charge:—

That being a registered medical practitioner: (1) You committed adultery with, and behaved improperly to, Daisy Rees on Feb. 26th and March 3rd and 8th, 1936; (2) You stood in professional relationship with the said Daisy Rees on the said Feb. 26th and March 3rd and 8th, 1936, and that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect.

Dr. Curran was present, but was not accompanied by counsel or solicitor. Mr. Harper applied for a hearing in camera, and the Council agreed. The Council found the facts proved and directed the erasure of his name.

The Case of James Ebenezer Boon, registered as of 38, Bath-road, Bedford Park, London, W.4, L.R.C.P. Edin. 1900; L.R.C.S. Edin. 1900; L.F.P.S. Glasg. 1900, who had been summoned to appear before the Council on the following charge:—

That being a registered medical practitioner: (1) You committed adultery and misconducted yourself with Lucy Matilda Jones on numerous occasions between February, 1924, and September, 1933; (2) You stood in professional relationship from 1908 to 1933 with the said Lucy Matilda Jones, and with her husband, Cecil Baskeville Jones from 1908 to his death in 1921, and that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect.

The complainant was Mrs. Jones, who was represented by Mr. Laurence Vine, counsel, instructed by Mr. George R. Cran, solicitor.

Dr. Boon was represented by Mr. George Pollock, counsel, instructed by Messrs. Munton, Morris, King and Co., solicitors.

Mr. Vine, opening the case, said that respondent admitted adultery between 1924 and June, 1931, but denied professional relationship with Mrs. Jones. He admitted professional relationship with her husband. The only issue was that of professional relationship with the complainant. She was a widow who had lived with her husband in Dulwich from 1908 onwards. Her husband had died in 1921. The parties had met as a result of mutual interest in the church. She had been a member of a medical aid club of which respondent was medical officer, and had received treatment from time to time, both as a member of the club and as a private patient. He had at one time sent her to the South London Hospital. There had been a breach of promise action and she had been awarded £300 damages recently.

Mrs. Lucy Matilda Jones testified to the facts as set out by her counsel and said her husband had been Dr. Boon's panel patient from 1911 or 1912. She had first met the doctor through calling him in to attend her husband. He had given her medicine for diarrhœa. She identified the membership card of Dr. Boon's private panel or medical aid club, which she had joined about 1915 or 1916. She had paid a shilling a month. No other doctor had had anything to do with that club, so far as she knew. No other doctor had treated her during the period of her membership; or until Dr. Boon sold his practice. She had had no association with him since July, 1933, when she had left Dulwich. In November, 1933, she had issued a writ for breach of promise of marriage. She had consulted Dr. Boon for pain in her right arm, a cut arm, anæmia, and other complaints. She or her sister had fetched the medicines from the surgery. She had not paid him anything, apart from the subscription to the club.

Cross-examined, she denied the statement in her statutory declaration that she had paid him fees, and maintained that this sworn statement was quite untrue. She did not regard herself as a patient of Dr. Fisher. She had seen him once, to ask for a record of having been a patient of Dr. Boon's. She did not deny having gone to him to get evidence for this case. She maintained she had said in court during the breach of promise case that she was a patient and had been one for twenty years; the idea of being a patient was not an afterthought. Dr. Boon had visited her both as her future husband and as her medical adviser. She could not give any idea of the time when she had complained of ill-health to him. She ought to have bought a revolver and shot him in order to stop him coming to her home. She was here to tell the medical gentlemen that a man with uncontrolled passions had no right to enter the homes of women. It was a public duty. He had taken her by force. Asked why she had let the association go on for seven years, she asked what else she could do. There was no spitefulness whatever in her declaration that he was putting himself on a pedestal with regard to church and medical affairs. If she had spoken one word against him he would soon have said she was blackmailing him or something. That was why she and her sister had gone on attending the church. She had told her solicitors she wanted £50,000 to settle the case out of court. This was two years after her engagement to another man had been broken off. She had paid subscriptions to the medical aid club for many years and had had no return.

In reply to Mr. Vine, she said Dr. Boon had called frequently to attend her husband during his last illness. He used to preach at the church and come to see her afterwards, during his wife's lifetime. There had been no break in the subscription to the club. He had said "You are more than an ordinary patient to me" when he sent her to the hospital with a letter. She had had no medical attention from any other doctor until Dr. Boon sold his practice.

Dr. Boon testified that he had met the Joneses solely through the church and there had been close friendship for many years. He denied professional relationship. He had given her a preparation for anæmia. She or her sister might have called for these tablets, or he might have taken them to her house. She had had several boxes. He had suspected malignancy and was determined not to examine her himself, so had sent her to hospital with a note. He had never examined her. Sexual association had ended in May, 1931, and he had often seen her since. At no time, other than those mentioned, had he treated her as a medical man. He had never regarded her as his patient.

Cross-examined, he agreed that he had supplied Mrs. Jones with tablets for months, paying for them himself. This was at the time when she was subscribing a shilling a month to a medical aid club of which he was sole medical officer. It was not the same treatment he would have given to any club patient suffering from anæmia; it was too expensive for the club. There had been perhaps 60 or 80 members of the club, all personally approved by him. Every one of the members was a potential patient; some of them he never saw. He did not look on people as patients if he never saw them. He had made no efforts to get the secretary of the club there; he had not regarded it as of importance. In his letter to the hospital he had said he sent her more as a friend than a patient. As far as he knew, no other doctor had ever treated her; he did not think she had ever had any illnesses. He himself had not attended her for her arm or shoulder or any of the other occasions she mentioned. Shown the scar on her arm, he declared he had never seen it before. He had sworn he had never promised to marry her.

Re-examined, he said he had paid the £300 and the costs.

In reply to the Legal Assessor, he could not say that she had been a member of the club from 1916 to the time he left Dulwich, but did not desire to dispute the possibility. Patients were entitled to medicines from his surgery. There was no restriction in the rules as to the drugs allowable. He would not have been upset if the club members had gone to another doctor.

In reply to Sir Walter Langdon-Brown, he said he had received a report from the hospital saying there was no carcinoma, but a uterine fibroid.

In reply to Prof. Sidney Smith, he said he had sent her to hospital because she had told him of her symptoms in conversation.

Dr. Fisher testified that he had bought Dr. Boon's practice in 1931, working with him for 16 months. He had not been introduced to Mrs. Jones. He had destroyed all the old ledgers. He had not come across any record of attendance on Mrs. Jones.

Cross-examined, he agreed that Dr. Boon was closely associated with the church, which he actually owned. He would not regard members of the club as patients until he had attended them. Nor would he regard a person as his patient because he sent him to hospital with a note. He had heard nothing at all about Mrs. Jones before the breach of promise case.

Re-examined, he agreed that he would have examined Mrs. Jones before sending her to the hospital if she had been his patient.

In reply to the Legal Assessor, he said the collector had the list of club patients and he had never seen it. If patients brought up a membership card he treated them as club members. Prospective new members came and applied to him.

In reply to Prof. Sidney Smith, he said he had been introduced to a number of club members as patients; he could not say he had been introduced to every one of them.

In reply to Sir Robert Bolam, he said he did not exact any further fee from club patients, and only regarded regular subscribers as patients when he had attended them. He was responsible for them if called.

In reply to Dr. Bone he agreed that the difference between the panel fee and the club fee represented the cost of medicines.

Mr. Pollock, addressing the Council, emphasised that the doctor had not regarded the relationship as professional, and that the events of which Mrs. Jones spoke had not begun until sixteen years after the beginning of the relationship in 1908.

The President announced that the charges had been found proved to the satisfaction of the Council and the Registrar had been directed to erase from the Register the name of James Ebenezer Boon.

Restorations

After deliberation in camera the President announced that the Registrar had been instructed to restore to the Dentists Register the name of John Black Cochrane Fowler; and to the Medical Register the name of Laurence Handley Ashken.

PROTECTION AGAINST AERIAL ATTACK

Dr. E. P. POULTON presided on Nov. 25th at a meeting of medical practitioners and scientific workers held at B.M.A. House to consider the possibility of aerial warfare and of defence against it. The resolution which formed the basis of discussion was as follows:—

> This meeting, called by the Medical Peace Campaign, while welcoming all practicable measures taken by the Government, wishes to emphasise that no complete protection against air attacks is possible, particularly in working-class areas, and that the prevention of war by collective security is the only sure measure of safety.

In his introductory remarks Dr. Poulton said that four speakers had been invited each to give a ten-minutes address. They would be committing no one but themselves to their views.

THE FOUR INTRODUCTORY ADDRESSES

Dr. STELLA CHURCHILL recalled the devastating effect of air-raids in 1916–18 when there was no gas attack. Next time, she said, we must be prepared for what is now going on in Madrid, which is very like London. In 1936 we are really only ready for the war of 1914, but it is still not too late to see how we may best put our medical services at the disposal of the country.

Mr. R. MACKINNON WOOD said that during the late war Great Britain was visited by no more (on the average) than two planes and one airship a week; these inflicted 1300 deaths and 3000 injuries. To-day an aircraft could travel at 300 miles an hour, with 7 tons of bombs, over a range of 1000 miles, which put the whole of England and Scotland, up to the Caledonian Canal, within reach of the German frontier. The aim of an air-raid might be military (troops, lines of communication, power stations), or civil (striking large urban populations), or indiscriminate. Mr. Winston Churchill had just stated that a sudden blasting attack on the civilian population was an integral part of modern warfare. In clear weather hostile aircraft, many and fast, would elude by sheer weight of attack; with overcast sky machines in the clouds could securely look and see just where to lay their eggs. The only defence, he suggested, is the fear of reprisals. An air war might open and be won in a few days by completely demoralising the population. High explosives intimidated by their noise and by opening up the gas mains. Incendiary bombs were the most deadly; being of combustible metal which cannot be extinguished they burn through steel and concrete at a temperature of 5000° C., and a single plane can carry a thousand of such bombs. Poison gas was a misnomer, for the most deadly poisons were liquids such as mustard gas and lewisite, against which masks (even three million of them) were no more good than bowler hats. Estimates of the amount of bombs needed to destroy London varied from 100 to 8000 tons; the one estimate he thought too low, the other too high. But it was not in bombs, but when sprinkled, that poison gas was most deadly, as had been shown in Abyssinia.

Mr. L. A. RAWLINGS, Ph.D., pointed out that throughout history it was said that every new weapon had given rise to a more or less adequate defence, but we had evolved no really adequate defence against the rifle—except another rifle. There was no adequate defence against hostile aircraft. Imagine, he said, an air fleet approaching the coast in the dark at a great height. It would be heard in quiet places when still ten to fifteen minutes from London, and searchlights would come into play; but their efficiency was disappointing, as location depended on height, temperature of air, speed, and direction of wind; and until the enemy was located there was no remedy. From the ground a shot took a quarter of a minute to reach a height of six miles, and during this time the target had travelled a mile, and the plane might dive at any moment. The weakest link in defence was the search-light, but for the same reason the enemy could not stop our raids. He suggested that a coloured film of a gas attack, freely shown in European cities, would reduce the war fever.

Dr. F. R. EDBROOKE, M.O.H. for combined Surrey urban districts, compared aerial warfare with environmental disease; the danger being essentially manmade therefore gave hope. The only way to get full security from air-raid was to abolish military aeroplanes and internationalise civil ones. To organise first-aid, he said, would require one first-aid worker for every fifty of the population, and it was unlikely that number could be got together. It was impracticable, he felt sure, to make existing buildings gas-proof. Decontamination was impossible on a large scale and evacuation difficult. There was no protection against high explosive except 12 feet of concrete. He felt inclined to advise no action, for the mind of the citizen was undergoing subtle poisoning: (1) either he gets the wind up; or (2) he is reassured by the statements made; and in any case (3) he gets to consider attack as imminent or inevitable. The M.O.H., while coöperating in any precautions available, must admit that precaution can never be complete, and that the only real security lies in other directions.

SUGGESTION FOR AN INQUIRY

Prof. J. R. MARRACK remarked that there were bound to be loop-holes in any scheme of protection against gas. People with masks available might be taken by surprise or have cold fingers, and even the conspicuous notice in the German trench—"Mensch, wo ist das Gasmask?"—was often neglected. But that was no reason why the protection offered should not be of the best. Gas-proof rooms were all right, but many people who had not a room to set aside must be evacuated. In one London borough a census showed 20,000 people living in rooms unsuitable for gas-proofing; more than 70,000 families in London, say 250,000 people, were overcrowded. How could they all be evacuated? Some must be taken and some left; but would they be keen on moving, and who would carry on the essential services? The second line of defence was the gas-mask, in case the rooms were not gas-proof or high explosive broke down the proofness; but the mask being shown to trainees was not the mask that is to be issued to the civilians but the Army mask. Was the reason that the former is a poor piece of work? Arsenical smoke with its particles of 1μ in average size would penetrate any mask and make it impossible to wear. It might be unlikely that arsenical smoke would be used, but the military advantage of it was very great. Then of course children under five cannot wear masks, and none of the various expedients—the covered pram, the enveloping bag—were proving very simple. For any sort of protection to be effective the child must be quiet; babies would have to be trained. The medical profession could do much to restore confidence if they felt confident themselves, but nothing was less calculated to inspire confidence than concealment and bluff. Our protectors had had no practical experience with gas and had apparently never seen a slum or a baby. We needed a commission of inquiry by the Government. The British Medical Association had done good work in their inquiry about nutrition; why not repeat this in the matter of gas warfare?

DISCUSSION

Sir FRANCIS FREMANTLE, M.P., said he thought the Home Office was right in putting up a screen to the civilian population. It had been said there was no protection against the bomber, but he had been informed on high authority that that was not the case in the long run; but, he added, there may not be time for a long run. About the gas-mask he had nothing to say; he could only speak of the horrors of war. There was, he thought, an immense population in Europe which recognised that nothing, not even colonies, were worth these horrors. He would like to see a popular diplomacy set up against the official diplomacy, and getting even totalitarian governments to take note of it.

Dr. ALFRED SALTER, M.P., said he believed there was no protection against air-raids except peace. Remedies were futile. He did not know one house in Bermondsey that could be made gas-proof. The gas-masks taken with them by the Spanish ambulance had cost about £5 each.—Dr. CECILE BOOYSEN, secretary of the Medical Peace Campaign, said she could not agree with Sir F. Fremantle that if protection is not there we should tell people it was. She regretted that no representatives of the Home Office air-raid department were present; they had been invited.—Dr. H. JOULES maintained that the truth should be disseminated and people allowed to work out their own conclusions. If we hoodwinked our patients we should sacrifice the confidence which it had taken generations to build up.—Dr. T. O. GARLAND thought that the Campaign should confine itself to scientific inquiry on the lines of the B.M.A. food investigation.

Dr. POULTON then moved the resolution from the chair, asking if the meeting would like the Campaign's council, when appointed, to approach the B.M.A.—Dr. A. L. LANKESTER, who seconded the resolution, said that the position revealed by the experts was absolutely without hope. The one line of action was to seek peace in every possible way. Medical men knew about the horrors of war and should try to form public opinion.—Dr. HILDA CLARK wished to include in the resolution a recommendation for the internationalisation of air forces, but her amendment was not carried.—Mr. J. D. BERNAL spoke of a group of Cambridge chemists and physicists who were investigating such problems as the gas-proofing of rooms and would be glad to join a B.M.A. group.

The resolution was then put and carried, after deletion of the words "by collective security," with a rider commending to the B.M.A. the study of protective measures for the civilian population against air attack.

MEDICINE AND THE LAW

Artificial Insemination

AN ingenious discussion has arisen in America (Jour. Amer. Med. Assoc., Nov. 7th) on the question of the legitimacy of a child born in wedlock as a result of artificial insemination from a donor other than the father. If the point has not yet been judicially examined, the practice is apparently to take every precaution over the rights of the parties. Thus it is stated to have been found necessary and advisable to insist that the woman's husband be made to give a written consent to his wife's insemination. A specific form of document has been evolved, the signatures of husband and wife are affixed and attested before a notary. The consent sheets are signed in duplicate and the parties retain a copy each. "These consents legitimatize the child under the present New York laws and establish it as the legal heir of the family unit." Warnings against possible blackmail by the donor are mentioned. The possibility of a husband being guilty of adultery by being himself a donor to someone else's wife is also considered. The English courts can offer no contribution to this topic. Although in the Russell case in 1924 Lord Dunedin observed that "fecundation *ab extra* is, I doubt not, adultery," the remark, as his judgment shows, did not refer to artificial insemination.

This American discussion happens to coincide with a recent decision by Mr. Justice Langton in the nullity suit of Farnham *v.* Farnham. The case is a reminder of the restriction placed by our law upon the giving of evidence by husband or wife as to non-access or non-consummation. This evidence is common enough in the Divorce Court, but the rule which was confirmed in the Russell case excludes it where its admission might make a bastard of a child born in wedlock. In Goodright's case Lord Mansfield described the rule as "founded on decency, morality and policy." In the Poulett Peerage case Lord Halsbury said it "most wisely and properly protects the sanctity of married intercourse and forbids it to be inquired into in any court of law." There is no notion of seeking to protect the judge's ears from the shock of unpleasant details. The Divorce Court is not unaccustomed to the unprintable, and Lord Birkenhead in the Russell case heroically declared that the judges would do their duty and listen to any testimony, however indecent, if it would elucidate the truth. In spite of Lord Halsbury's dictum, the principle is not solely a rule for preserving the confidences of married life, for it applies only where there is a child whose legitimacy may be jeopardised. It may be added that the application of the rule in Russell *v.* Russell was upheld in the House of Lords by a bare majority of three judges to two and that many lawyers think the minority judgment by Lord Sumner as cogent as anything said on the other side. To return to Farnham *v.* Farnham, the facts were that the marriage was solemnised in 1933: five months later the wife left her husband and never returned. The husband petitioned for a decree of nullity and, if his evidence was admissible, the judge was prepared to hold that the marriage was never consummated because the wife was incapable as regards the husband. But Mrs. Farnham gave birth to a child two years after leaving her husband. Although she admitted that he was not the father, here was a child born in wedlock, and Mr. Farnham's evidence of non-intercourse would tend to bastardise the child. Mr. Justice Langton, obviously aware of the awkwardness of this unfair obstacle to the petitioner's suit, was able to hold that the rule in the Russell case (preventing husband or wife from testifying to non-access) applied to divorce proceedings but not to a nullity suit. He pronounced a decree nisi of nullity. Thus the law refrained from refusing to let evidence be given by the person best able to give it.

L.C.C. SPECIAL SERVICES FOR CHILDREN.—At its meeting on Tuesday last the London County Council approved further developments in the 3-year programme for the treatment of school-children. A new treatment centre, especially for rheumatism, is to be opened at Balham. All children are to have their teeth inspected once a year, and more electric dental engines are to be provided; temporary orthodontists will be employed. Orthoptists are to treat squint cases under the supervision of ophthalmic surgeons. A further grant is to be made to the London Child Guidance Clinic. Children under school age will be treated at school centres if the borough council is prepared to reimburse the cost of treatment. This will need the addition of two assistant organisers of children's care work.

DR. GRAY'S HOSPITAL, ELGIN.—An appeal is being made for £30,000 to re-equip this institution, where the nurses' accommodation is inadequate, the radiological and X ray departments out of date, and the heating and lighting apparatus defective.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index.

BY A CHRONICLER

I

It was the reviewing of certain recent books dealing with medical history which started me on an attempt to look into the relations of medical journalism to medical authorship, and the relation of both to medical progress. In the earliest days of journalism, when printing was not established, such chapters as follow would have come from one styled "a chronicler."

* * *

There is no real difference between a technical journal and any other newspaper, if the definitions of "newspaper" and "journal" in the Encyclopædia Britannica and the Oxford Dictionary are accepted. At the same time, there are circumstances in connexion with the technical journal of a special character. The number of its subscribers is limited by the size of the constituency for whom it is produced, and any appeal for indiscriminate support outside would damage it in the eyes of its proper audience and eventually in those of the public, and this is particularly so in the case of the medical journal. The circulation of the medical journal is large in some countries, notably in the United States, and large, though much smaller, in the United Kingdom. But, even so, the total possibility of support has to be reckoned in thousands and not in hundreds of thousands, so that whatever figure the circulation of a well-supported medical journal may attain to, it must be a small one compared with that of a popular organ. But bulk is not an essential quality, and the medical journal gains support not only by the contents, which are directed to the needs of the medical profession, but by attention to matters of public interest where medical activities are the centre of that interest. Other professions possess similar mediums, devoted to their own interests, and at the same time informing the public for the public good; their contents are comparable to those of the medical journal, except that the translation of medical information into language easy of popular comprehension defies ingenuity more completely than occurs with any other technical production. Other circumstances where the medical journal occupies a peculiar place are mutually contradictory, for while its circulation is limited its possible scope is unlimited. The information which it might give usefully cannot be defined because the science of medicine has no boundaries; but the language in which that information is conveyed will not be understanded of the people at large without translation.

Journals of a special character employ phraseology proper to the specialty: they must do so or the significance of the information will be lost for the specialist even though much of the message may be clear to the public. It is sad that the transmission of medical knowledge should suffer in a marked way from the difficulty of language, for here lies the reason of much criticism and some ill-founded ridicule of the medical profession for pomposity, and for a presumed desire to envelop the common-place in a shroud of imposing jargon. "I wish you would talk English," says the lay coroner, "so that the jury and I can understand you." (Laughter in court.) The puzzled gentleman is forgetting that the nouns, adjectives, and sometimes the verbs which the medical witness must use if—so help him God—he is to tell the truth, the whole truth, and nothing but the truth, are not English. It is forgotten that the international character of medicine makes it seek knowledge in all and from all countries, and that accordingly writers and speakers must employ a phraseology that is in its essentials comprehensible internationally. Precision in terminology is necessary in all scientific descriptions, whether by experts in a law court, doctors in a learned assembly, or in the columns of the medical press, for only in this way can discussion be conducted without confusion and much waste of time in explanations. The coroner of the future, it appears, may be usually a lawyer, but it is presumed that either he will be a doctor also, or will be required to have medical knowledge, or be able to command it, and thus he need not charge his juries without appreciating the points of medical evidence, when differences of opinion may have been expressed.

* * *

It is particularly unfortunate that medical details should be so difficult to put into the vulgar tongue, since the desire of the public to follow their meaning is natural. For medicine is to everyone an individual affair. Law reports may make as wide an appeal to the reading public, but those who follow the exciting episodes are not personally planning robberies or avoiding swindles; they are not designing to murder or apprehensive of being murdered. But everyone is interested in the maintenance of health for personal as well as public reasons, while, with the progress of its own science and of the sciences to which it is inextricably bound, medicine has come to permeate all activities. And for this reason the record of any event in a medical journal may have to take note of things remote from medicine proper.

May the following childish example be excused? The first statement in a reading book which introduced Latin to me and many of my contemporaries was that "Balbus was building a wall." If Balbus's activity, for this or that reason, becomes "news," various journals and special organs will comment on the statement. Each will do so within a scope suitable to the public appealed to, and what would be expected from each would have an appropriate bounding line. How would such a line be drawn in the case of a medical journal? These are the points which it might be necessary for the medical journal to consider in face of Balbus's enterprise: the heredity and upbringing of Balbus and his fitness for building; the influence upon public health of the erection—either beneficial as a screen, or malign as cutting off light and so on—and the conditions under which the labour is being conducted; these would include the health of the workers and perhaps their wages, risks of accidents to them or of disease from the materials employed. Here we have eugenics, statistics, social medicine, and pathology all on the tapis; and under any of them Balbus's work becomes news for a medical paper. And because of the universal and welcome interest of the public to-day in health matters, the general press, as representative of public needs, may wish to make statements referring to the medical aspects of what Balbus is doing. To do this accurately may need the translation of medical phraseology into common speech, and the task is a hard one.

* * *

The difficulty did not exist at the dawn of journalism, when news consisted of flat statements from ruler or priest, and when there was no room for discussion, comment, or interpretation. For journalism, as I venture to interpret the term, is a very ancient profession, and medical journalism is one of its oldest branches, one bearing leaves at least 2500 years ago. The famous code of Hammurabi, King of Babylon, is dated 2000 B.C., and medical situations were here dealt with that must have formed the subject of public conversations, for the existence of the abuses had to be familiar before the penal legislation could be framed. Hammurabi, whose drastic methods have made popular quotation, seems to have been his own General Medical Council as well as his own High Priest and Lord Chief Justice; his punishment for malpraxis was death, and we can imagine that the punishment was sometimes made to fit the crime in arbitrary manner. But there must have been records to prove the occurrence of the crimes for which the penalties were devised. And historical reading confirms that from such records medical literature sprang, to be reinforced in collated forms by subsequent learning.

* * *

What medicine existed in Greece before the time of Hippocrates is a question for historical and textual research beyond my comprehension, but I am cheered to learn that the indecipherable Cretan tablets were probably mere inventories and most unlikely to contain medical lessons. Medicine, however, had a history in Greece far behind the works of Hippocrates, and Homeric warriors knew much surgery. In the temples of Æsculapius, who, as befits a god, has no date, were votive offerings stated to have been drawn upon by Hippocrates and the authors comprising the Corpus Hippocraticum. These records, affixed to the temple walls under the administration of priests who were not physicians, have been regarded as the clinical material for the Corpus, but modern scholarship does not accept the view exactly, since the great prosperity of the temples hardly if at all preceded Hippocrates's own date. But anyhow, 500 years before the Christian era the worship of Æsculapius had become associated at his temples with a form of medical practice, and when the gratitude of patients took the shape of tablets recording the treatment administered and the results obtained, and when the counsel of those who ministered at the centres was acted on, medical journalism may be said to have taken a place on the map. The tablets were hung in conspicuous places, and such medical knowledge as the world possessed was disseminated through them. Similar records were kept at temples in Egypt, but here the priests were bound to practise in accordance with the sacred books of Hermes, and accordingly, from the lore of primitive Egypt, later to harbour the famous school of Alexandria, medicine derived nothing of permanent value, for the truth was always subservient to tradition.

The early history of Chinese medicine offers a similar lesson against organised credulity. It has been written very fully by Dr. Wu Lien Teh, the director of the Manchurian Plague Prevention Service, and an epitome has been furnished by Dr. William Morse. Here it can be gathered that the medicine of China depicts the character of the nation through a vast period, and this is a devastating reflection as far as medicine is concerned. Dr. Morse supplies evidence of considerable medical art existing in China as early as 200 B.C., at which date a collation of the early medical writers of China was made in response to imperial edict. But no progress followed in medicine, for the same reason that medicine in Egypt stood still until Greek learning came to the rescue. While in Egypt early medicine had to submit to priestly control, in China the science had to follow the edicts of a fanciful cosmogony; astral phenomena were studied and resulted in the laying down of premises that had to be accepted, and a system of medicine was evolved which was inelastic and not adaptable to increasing knowledge. When facts were discovered—and according to Dr. Morse they were ardently searched for—there was no inducement to alter previous opinions, and so proceed to development. Innovation might have been regarded as blasphemy. Germany might take warning here, for in that country an anthropology dictated by politics, not science, has been imposed upon medicine; the results for the moment are injustice and cruelty, but they may well be detrimental in the future to the progress of medicine.

In Imperial Rome the ancient pedigree of journalism becomes a sound one. Romans at the dawn of the Christian era possessed a journal, and the word itself is derived from the Roman Acta Diurna. These authorised accounts of the day's events were affixed every morning in a conspicuous place in the forum, and comprised among other things medical information analogous to that furnished by the medical correspondents to our own newspapers, epidemics and disasters being noticed. The Acta Diurna were circulated by copy in Rome, for Juvenal speaks of a lady reading her newspaper in bed while having a female slave whipped for further diversion—the passage occurs in a satire which is excluded from educational curriculums but which is widely read, and deserves to be, for its brilliant virulence. The difference between the votive tablets in Greece and Egypt on the one hand, and the Roman Acta Diurna on the other, is that in the latter such medical information as was forthcoming was given out to the public as a part of public news, while in the Æsculapian records the information was to be sought in temples, and only the sick and those who ministered to them were likely to benefit by it.

* * *

No pretence is made to the writing of medical history, which is now being done freely and well: only salient points are chronicled.

Three great medical authors dominated the whole period from the fourth century B.C. to the sixteenth century A.D.—Hippocrates, Celsus, and Galen. Their rule lasted until the publication of Harvey's discovery, and indeed for a period subsequent to that revelation. For medicine was not quick in a general way to realise what Harvey had done, because much of the teaching was founded on the work of Hippocrates, and was (and is) sound, and thus could be followed with success by men who did not appreciate the new and scientific grounds for much ancient and empirical procedure. Hippocrates lived at the zenith of Greek culture, was a contemporary of seven of the greatest men of letters whom the world has ever known, and the records at the temples of Æsculapius were at his disposal; without stressing too much the importance of these temples before his day, they were centres where the treatment of the sick was conducted, and, as that great man of letters Allbutt pointed out, the votive offerings, sometimes written and sometimes plastic, furnished examples of clinical notes. This was journalism in its right place as the starting-point of medical literature.

Celsus in the beginning of the first century A.D. had the works of Hippocrates under his hands, having access to them at Alexandria: he wrote on agriculture, the art of war, and other subjects as is known from his own words, though all but the treatise on medicine have disappeared. Galen, in the next century, wrote of medicine among other of a large range of subjects, and founded his teaching also upon written records; he was born at Pergamos, where Æsculapian tablets were to be found, while he had access also to the libraries at Alexandria, and benefited by the anatomical discoveries of Erasistratus and Herophilus. It is interesting to note that both Galen and Celsus regarded medicine as a branch of general science. They concentrated upon its study, but had an all-roundness of vision which was lost by medical writers who followed; and indeed almost until our own times did the interconnexions between medicine and science generally remain indistinct, though in what are termed the Dark Ages subservience to belief in magic and spells had a medical flavour.

But the ages that were so dark for Europe saw the rise of Islam. A knowledge of Greek existed in the East among the Islam conquerors, and in consequence of Greek influence we have Arabian medical literature, the works of Rhazes and Avicenna. Rhazes was born in 860 A.D., and of him we know that he was philosopher, astronomer, and musician. For the medical science in his writings he drew on Hippocrates, but is famous for his original remarks on small-pox. To those who are complacent concerning twentieth century progress it may be a sobering thought that Rhazes was the exact contemporary of Alfred the Great. Avicenna came a little later. His Canon is also based upon the work of Hippocrates and kept medical learning from submersion at a time when the culture of Europe was disappearing in bewildered Roman provinces, transformed and rearranged under waves of invasion. All interested in the history of medicine should be grateful to Prof. O. Cameron Gruner for his recent translation of the Canon. The mass of learning brought together by the famous Arab is amazing, as is the modernity of his injunctions, laid down by transforming popular rumours into exact experience. This experience was got by him as an itinerant doctor who, in the course of his journeyings up and down, collected medical information which he communicated to classes of students by word of mouth. His case illustrates aptly the sequence that occurs between the collection of clinical notes and the production of the sound treatise, and brings him within the definition of a medical journalist.

* * *

The teaching of Galen, and to a less extent that of Celsus and Avicenna, all deriving from Hippocrates, pervaded medicine for 2000 years, and its influence yielded but slowly in face of the scientific progress made possible by Harvey, the sterile period of the Dark Ages intervening. The Dark Ages were not so dark as has been believed although, so far as medicine is concerned, no progress was recorded in any literary manner in Europe between the seventh and the seventeenth centuries A.D., the Roman Silver age furnishing very little if anything at all. The art of medicine was cherished by monks and nuns, but the learning of the cloisters was not spread from them as it had been from pagan temples. The nursing brethren and almoners of religious houses acquired much familiarity with practical therapeutics but their knowledge remained undiffused. Of what value to medicine their observations might have been we can only guess, but the recent translation of parts of the works of Johannes de Mirfield by Sir Percival Horton-Smith Hartley and Mr. Harold Aldridge leads to the conclusion that traditional Greek and Arabian literature would have been relied on. Mirfield, whose date was early in the fifteenth century, was in official touch with the hospital as well as with the religious foundation of St. Bartholomew, but neither of his books seems to register any scientific progress though we must be grateful to the learned translators for very amusing reading.

The Renaissance, though bringing a knowledge of Greek, led at first to no medical progress; indeed, it may have had a sterilising effect by confirming Galen, who wrote in Greek, in his position for a long period as the ultimate authority. Paracelsus in the sixteenth century challenged the authority, and I have read somewhere that he did this in dramatic fashion by burning the works of Galen and Avicenna in public. But the force of tradition was too great for him, and, indeed, his own contributions to therapeutics were for the most part no less speculative than those of Galen, though he has to his credit some pharmacological researches, and, as was noted at the recent congress of the International Society of Medical Hydrology, made a close inquiry into the virtues of the Gastein springs. Rabelais, his contemporary, became a doctor when he was over 30 years of age, having previously been in clerical orders. He was an ardent student of Greek. His medical curriculum must have been extremely short, as almost immediately after entering upon his medical studies he was accepted by Montpelier as a teacher, and lectured on Galen. Scholar, wit, and critic of men and manners, he does not seem in his marvellous book to display the slightest interest in medical research, his references to pantagruelion and urinalysis being never serious.

* * *

These notes will make absurdly familiar reading to students of medical history, but, as has been said, they are not pretending to be a history. They are set down to show that from the keeping of records in whatever form or medium, and from their circulation, medical writing took shape; and if this be so, medical journalism enjoys a long pedigree.

A medieval French nobleman, regarding the Valois and Bourbons as mushrooms, ordered the picture of his family tree to start with Adam, from whom a fine line was traced through semi-divine heroes and heroines, emperors, vikings, and anything which came to hand, till the thirteenth century was reached, without record of any mésalliance that would have defiled noble blood. The material employed in constructing the pedigree was that reproduced in the romances which were beloved by Don Quixote. I do not know what date the Church in the thirteenth century would have ordained for Adam but I think it likely that it might have been about that assigned to Hammurabi. Certainly in medieval days the world was considered a fairly recent affair. Indeed I find it stated in a volume published as late as the nineteenth century for the instruction of young English ladies, that its creation took place in 4004 B.C. Our great-grandmothers and grandmothers might have been considered ignorant if they had been unaware of this fact, which was no doubt communicated to Miss Sharp by Miss Pinkerton, and perhaps to Miss Bud by Miss Twinkleton, for Cloisterham was not likely to be progressive. I am suggesting a pedigree for modern journalism that goes further back than the Sire de Montmorency's imagining could take him, and one which requires less imagining.

PANEL AND CONTRACT PRACTICE

Domiciliary Service in Newcastle-upon-Tyne

NEWCASTLE-UPON-TYNE was one of the first areas to adopt an open choice system of providing medical aid for the sick poor. When the poor-law functions were transferred in 1930, it happened that six of the ten medical relief districts were available for the experiment and these were constituted a joint medical relief district as from Nov. 8th, 1933, the Minister having authorised the necessary departures from the Public Assistance Order, 1930. In March, 1935, Dr. J. A. Charles presented a report to his health committee on the working of the scheme during the initial period of ten months.[1] The practitioners participating had agreed to accept remuneration from a pool of £1200 (except for certain special fees) allocated on the basis of service rendered. Drugs and dressings were provided separately from a central dispensary. The £1200 had yielded only 5·656 pence per unit-service, obviously an inadequate recompense, and the council, being satisfied that the scheme afforded a satisfactory type of service, subsequently determined[2] to increase the available money and to pay each contracting practitioner as from March 1st, 1935, at the rate of 5*s.* per quarter per patient treated, but if a patient had had two quarters' consecutive treatment and required further medical attention, a fee of £1 would be paid to cover twelve months. Special fees for certificates required by relieving officers and for other special services were continued.

Dr. Charles has now prepared a comprehensive report on the working of the scheme as it operates in an area formerly comprising seven relief districts, during the year ended Feb. 29th, 1936. The system requires renewal of relieving officers' orders three-monthly, each expired record card being returned to the M.O.H. at such intervals. Any necessary renewal is determined by him except in doubtful cases, which are submitted to a medical referee. Practitioners are paid quarterly. The approximate average number of persons in receipt of any form of relief in the joint relief district was 13,500. The total number is not available for the whole period. The number of persons receiving medical treatment throughout the whole period was 8193. "Long-period" or chronic cases numbered 611; "short-period" 7582, most of these being acute cases of short duration. The age and sex of the patients in the two categories, and a broad classification of causes of sickness and invalidity under the headings used for insured persons by the chief medical officer of the Ministry of Health in his report for 1933, are given in valuable tables.

The rate of remuneration per unit service averaged 11·38 pence, being 1*s.* 0·17*d.* for short-period and 9·08*d.* for long-period cases. For true short-period cases—i.e., of less than three months' duration—it was 1*s.* 1·34*d.* The typical chronic case received 26·4 services during his nine months' or year's duration, the true short-period or acute case 4·5. The term unit-service covers both attendances at surgery and home visits. The former totalled 39,333, the latter 22,962, the ratio of attendances to visits being 1·7 to 1 as compared with 0·8 to 1 in the earlier period. For long-period cases the ratio was 2·2 to 1, and for short-period cases 1·6 to 1. Dr. Charles remarks that "the tendency to replace domiciliary visiting by the easier process of surgery consultation cannot be regarded favourably, and its further extension will be to the detriment of the service as a whole." The practice of medical practitioners in this respect varies and it appears to be desirable, though far from easy, to determine a reasonable ratio for an average group of patients.

The cost of medical practitioners' services is summarised as follows:—

	£	*s.*	*d.*
Remuneration of medical practitioners on the panel	2992	0	0
Fees for certificates (at 1*s.* each)	281	14	0
Fees for confinements	50	11	6
Emergency medicines	4	16	0
	£3329	1	6

The average expenditure per patient treated was 8*s.* 1½*d.*, of which 7*s.* 3½*d.* was chargeable against panel fees alone. Complaints as to laxity in certification have been few. Indeed, it is the considered opinion of the public assistance department that this work is done even more conscientiously than under the former system. The view expressed in the earlier report that the danger of excessive recommendations of medical extras had been exaggerated is confirmed by the more recent experience. On the other hand prescriptions have increased by 40 per cent. without any satisfactory explanation.

Though administrative charges are rather high, being 5 per cent. of the total cost of the medical and pharmaceutical provision, Dr. Charles expresses the view that no other scheme of domiciliary medical service is so acceptable to those who benefit by it and that the Newcastle arrangements are steadily approximating to a model scheme, the main items of which are set out on the last page of his report.

The New Regulations

The Medical Benefit Regulations, 1936, will come into operation on the first day of the New Year. All the amendments effected by regulations made since the issue of the 1928 Consolidated Regulations have been incorporated along with other amendments, including alterations of the terms of service, which experience has shown to be desirable, introduced after consultation with the Insurance Acts Committee and the National Association of Insurance Committees. Every insurance practitioner will by now have received a copy of the new regulations and it may be a convenient time to set out the principal alterations which affect practitioners under the Insurance Acts.

INVESTIGATION OF RECORD-KEEPING (REG. 45)

There are new provisions enabling the Minister to avail himself of the aid of panel committees in securing an improvement in the standard of practitioners' record-keeping so far as clinical notes are concerned where investigation by the duly appointed medical officer has shown that there is prima-facie reason to think that the records are not being satisfactorily kept in that respect.

APPLICATION OF THE ARBITRATION ACTS (REGS. 43 AND 67)

The provisions of the Arbitration Acts are no longer applied to appeals under Regulation 43 (5) relating to the investigation of excessive prescribing, as it is considered that such provisions are not properly applicable to appeals of this kind. The application of the Arbitration Acts, 1889–1934, to inquiries under the regulations has been expressly limited by Regulation 67 to the matters in connexion with inquiries in which their possible application is specifically authorised under Section 43 (*b*) of the National Health Insurance Act, 1936. The Sixth Schedule to the Regulations sets out in detail the sections of the Arbitration Acts applying to appeals.

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[1] THE LANCET, 1935, i., 774.

[2] Ibid., p. 889.

RANGE OF MEDICAL SERVICE (REG. 46)

Regulation 46 (1) provides for the determination of questions arising as to whether an operation or other service which a practitioner has advised for or rendered to a patient was within the scope of the practitioner's obligations under the terms of service to be made in accordance with rules formulated in the Regulations themselves and contained in the Seventh Schedule to the Regulations instead of, as previously, under rules to be separately formulated.

The Terms of Service

The First Schedule to the Regulations forms the terms of service and the following references to clauses relate to clauses in that schedule.

ARRANGEMENTS FOR PRACTICE ON RETIREMENT, DEATH, ETC.—CLAUSE 4 (1)

This clause has been amended to make it clear that in the case of the death of an insurance practitioner the right to require the issue of notices of the nomination of a successor to the practice applies only where a deputy has been appointed under Clause 4 (3) and within the period for which the deputy is appointed.

PERSONS FOR WHOSE TREATMENT PRACTITIONERS ARE RESPONSIBLE—CLAUSE 5 (1)

A proviso has been added to make it clear that a practitioner is not responsible for the treatment of persons in hospitals or similar institutions not open to medical practitioners generally for the treatment of their patients. This, of course, would not apply in the case of cottage hospitals where all local insurance practitioners have the right of access to their patients.

APPLICANT'S TITLE TO OBTAIN TREATMENT—CLAUSE 7 (3)

This clause has been amended so as to extend the time within which a request under the subclause can be made by an insured person for withdrawal of a practitioner's account or for refund of fees to three months instead of one, as formerly. The clause relates to those cases where the applicant, when applying for treatment, has not represented himself to be an insured person. It is also now made clear that the insurance committee may take action under the subclause requiring the withdrawal of the account or recovery of the fee for refund to the insured person (without recourse to the disciplinary provisions of the Regulations, and whether the insured person is on the practitioner's list or not) where the committee are satisfied that the action of the practitioner in presenting an account or charging a fee to the insured person was due to a genuine misapprehension as to the person's insurance status. This amendment means that in cases of genuine misunderstanding a practitioner who has accepted a fee from an insured person on his list is not *ipso facto* to be dealt with by the medical service subcommittee.

USE OF OFFICIAL PRESCRIPTION FORMS—CLAUSE 9 (10)

An amendment to this clause prohibits the use of official prescription forms for a patient whom the practitioner is not attending as an insured person. Cases have arisen from time to time where the insurance practitioner has treated a patient whose name is included in the list of another local practitioner, not in the capacity of deputy, but as an independent private practitioner. In such cases it is now definitely a breach of the terms of service for the practitioner to issue insurance prescriptions or insurance certificates unless and until the insured person's name has been transferred to his list.

ACCEPTANCE OF FEES—CLAUSE 10 (1) AND (2)

Practitioners are not debarred from receiving fees payable under Section 16 of the Road Traffic Act, 1934. Insurance committees, in consultation with panel committees, will now have to consider the adoption of a consequential amendment of the distribution scheme to debar practitioners from the receipt of emergency fees in such cases. Clearly, it would be improper for practitioners to claim remuneration from two independent sources in respect of the same service.

A minor adjustment, but one which will meet with general approval, allows a period of seven days instead of two days for the submission of Form G.P. 45 in cases where a practitioner has rendered what he claims to be specialist service to an insured patient on his list.

DEPUTIES, ASSISTANTS, AND PARTNERS—CLAUSE 11 (2)

This clause has been amended so as to make it clear that all necessary arrangements for the treatment of his patients must be made by a practitioner whether his proposed absence from his practice is for less than a week or for a longer period.

Medical Certification Rules

The medical certification rules (Part IV. of the First Schedule) have been amended in two respects. Rule 6 will now permit of the issue to patients in any area, instead of in rural areas only, of final certificates indicating fitness to resume work on a date not later than the third day after examination. Rule 13 now provides that where an insured person is a deposit contributor, and the practitioner has issued a certificate in which the cause of incapacity has been stated with less precision than his present knowledge of the insured person's condition makes possible, the statement to that effect shall be sent to the insurance committee. This has always been the practice but the provision therefor has hitherto been contained in a footnote and not in the body of the rule.

Other minor adjustments of the Regulations make it clear that where notices are issued as a result of a practitioner's obligations not being carried out owing to his continued absence or bodily or mental disability (Clause 4 (4)) the insured persons concerned have an immediate right to choose another doctor. It has hitherto been a moot point whether such right to a fresh choice existed and the ludicrous position was reached of an insurance committee having to tell insured persons that their own doctor was not available and leaving them in the possible predicament of having no claim on the services of any practitioner.

List of Prescribed Appliances

Adhesive plaster combined with medicated gauze or lint has been added to the list of appliances (in the Second Schedule to the Regulations) which may be ordered for insured persons as it is considered that this will result in economy by obviating the prescribing of larger dressings comprising bandages, &c. The standard for these appliances is to be specified in the drug tariff for the time being in force.

Allocation Scheme

It is proposed to amend Clause 7 (2) of the model allocation scheme so as to enable an insurance practitioner to secure the removal from his list of patients to whom certificates are not being issued (e.g., because they are not entitled to sickness or disablement benefit on account of age) on the same terms as those who are receiving certificates. This amendment will, of course, be effected only after the insurance committee concerned, having consulted with the panel committee, have decided to adopt it.

The Supply of Spectacles

Regulations have been framed by the National Health Insurance Joint Committee and the Minister of Health which provide for the setting up of a committee, representing approved societies and opticians, to make arrangements for the supply of spectacles under the health insurance scheme. This committee is to draw up a list of qualified opticians, it is to see that both frames and lenses are of good quality, and to publish a scale of charges for the various qualities of spectacles supplied. Approved societies have hitherto lacked adequate means of distinguishing between the qualifications of different opticians. The new regulations, the Ministry states, do not in any way prevent insured persons from obtaining

(Continued at foot of opposite page)

PUBLIC HEALTH

Dr. Brander's Retirement

On the last day of this month Dr. William Brander retires from his position as a principal medical officer to the London County Council. His retirement is due to the ill health in spite of which he had continued to grapple with the supervision and reorganisation of the general hospital service for which he was responsible. He was also head of the district medical service. Dr. Brander came into the service of the L.C.C. in 1929 after being for eighteen years medical superintendent of Hackney Infirmary; he has in fact spent his whole life as an officer of poor-law guardians and their successors. At the County Hall he has been reckoned one of the kindest and most generous of chiefs and he will be missed no less on that account than for the gap he leaves in the central administration staff. Those who would like to refresh their memory about what Dr. Brander has done should re-read the presidential address he delivered last year to the Hunterian Society entitled The Challenge of the Chronic Sick (THE LANCET, 1935, ii., 887).

Health Education

The Central Council for Health Education, which has just held its ninth annual conference at the London School of Hygiene, is now composed of representatives from all important bodies concerned with the health education of the people and the addition of two members appointed by the Ministry of Health brings it into close touch with the central government. The delegates were curious to know of any change in the policy of the council and whether any new means of education or of propaganda were contemplated. Lord Horder, who presided, spoke of the ultimate aim of health education rather than of the means of achieving it. Though cautious in his promises, he infused much enthusiasm and inspiration into his speech, for though he, as do all of us, knows the risks of instilling fears, he is confident that if health is taught as a positive function, as it must be, this great danger should never rise. Dr. Harley Williams dealt mainly with propaganda, which, though not education, is a necessary introduction to instruction and is the main business, though not the aim, of the Central Council. Dr. Williams, as also did Dr. Drummond Shields who followed him, stressed the difficulty of health propaganda in competition for the ear of the people, especially with the advertisement of patent and proprietary remedies for ill-health, and rather lamented that we did not use the methods which have been successful for making fortunes out of worthless nostrums. But education cannot be achieved in that way, because it must be permanent and progressive by its own merit. Certainly we must do something to start the desire for instruction and from time to time stimulate interest, else it will flag, but our appeal must be to the intellect and we may promise nothing that we cannot deliver. The means adopted by the Central Council—health weeks, exhibitions, posters, pamphlets, and lectures—can all help greatly, but they must be well done if they are to arouse interest and to sustain it. Undoubtedly most good will come from healthy education of children, not from health taught as a subject, but from a general atmosphere of health pervading all teaching, so that the habits of healthy living are bred in and become automatic. For this, instruction of parents and teachers is required. This is a slow process; there is much to be got out of the minds of the adult population before we can get the right stuff in and for a time we must expect a conflict between what is accurate but new and the superstitions and false teaching in which the present generation was reared. But it is comforting to realise that the erroneous ideas of life which inhibit health so greatly are gradually passing away as school medicine, maternity and child welfare, health insurance, and the gradual change in the outlook of medicine are weaning the people from their old belief that the business of the doctor was to dose the sick to the truer conception that he exists mainly to guide in the preservation of health in the stresses and strains to which all living beings are subjected. Our adult population received little or no instruction in any biological subject, but to-day we are getting some biology taught to most children and this we must encourage and direct, for it is impossible for anybody to understand what health really means if he is totally ignorant of the functions of living things. Here the cinema and wireless are helping us also and they can do more whilst pursuing their avowed object of amusement.

(Continued from previous page)

advice from doctors specially qualified, but the opticians on the new list will in future be the only opticians normally recognised for the supply of glasses to insured persons. The effect of the regulations will be to secure a more satisfactory service for insured persons applying for ophthalmic benefit, and to protect them against goods of poor quality and overcharging. About 500,000 persons qualify for ophthalmic benefit and £500,000 is spent on it each year.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 21ST, 1936

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0; scarlet fever, 2280; diphtheria, 1465; enteric fever, 28; pneumonia (primary or influenzal), 609; puerperal fever, 34; puerperal pyrexia, 101; cerebro-spinal fever, 12; acute poliomyelitis, 8; encephalitis lethargica, 2; dysentery, 26; ophthalmia neonatorum, 95. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Nov. 27th was 3693, which included Scarlet fever, 1137; diphtheria, 983; measles, 21; whooping-cough, 315; puerperal fever, 10 mothers (plus 6 babies); encephalitis lethargica, 288; poliomyelitis, 2. At St. Margaret's Hospital there were 12 babies (plus 5 mothers) with ophthalmia neonatorum.

Deaths.—In 122 great towns, including London, there was no death from small-pox or enteric fever, 5 (0) from measles, 2 (0) from scarlet fever, 8 (0) from whooping-cough, 40 (5) from diphtheria, 50 (20) from diarrhœa and enteritis under two years, and 29 (3) from influenza. The figures in parentheses are those for London itself.

Noteworthy it is that London had no death to record from any of the first five of the infectious diseases mentioned. Stoke-on-Trent had two deaths from measles, Warrington two from whooping-cough. Fatal cases of diphtheria were reported from 25 great towns, Liverpool 6, Luton, Birkenhead, Bradford, Manchester, Sunderland, and Chesterfield each 2.

The number of stillbirths notified during the week was 271 (corresponding to a rate of 42 per 1000 total births), including 48 in London.

CORRESPONDENCE

BENEFITS TO RETIRED PRACTITIONERS

To the Editor of THE LANCET

SIR,—In the early part of this year The London and Counties Medical Protection Society, Limited, considered the question of extending the benefits of the society to practitioners who had retired from practice and who had been members for several years. At the annual general meeting of the society on May 6th certain alterations in our articles of association were confirmed, thus enabling the society to elect as honorary life members such practitioners who have retired from practice after having been members of the society for 30 years; this without further subscription. By a further alteration in our articles power was given to the council to grant additional benefits or special indemnity on such terms and in return for such extra payment or subscription as the council may from time to time prescribe. We have already elected several honorary life members who had been members of this society for thirty years at the time of their retirement from practice.

At the same time alterations in our articles were made to allow of our undertaking a case brought against a deceased member's estate provided that the cause of action arose during the time of his membership.

We have under consideration an extension of our benefits to members by a somewhat similar scheme to that adopted by the Medical Defence Union, whereby members can retain the benefits of membership after retiring from practice having been members of the society for a less period than 30 years by paying an additional inclusive subscription.

I might add that although our articles of association have so recently been altered we have already had a case where an action has been brought against a deceased member's estate which we have defended.

I am, Sir, yours faithfully,

C. M. FEGEN,
Secretary.

Victory House, Leicester-square, London, W.C.2,
Nov. 28th.

DUODENAL ULCERS AND CIGARETTE SMOKING

To the Editor of THE LANCET

SIR,—In your issue of Nov. 21st Dr. V. S. Hodson suggests, as others have done, that cigarette smoking is a cause of duodenal ulcer, and says that he has "not yet met the article devoted to bringing out the importance of this question." I should like to refer him to my article in THE LANCET (1934, i., 808) which records the results of a preliminary inquiry into this question. In this investigation I compared the past smoking histories of 50 cases of duodenal ulcer with those of 400 controls. Briefly, the conclusions were that men suffering from duodenal ulcer had *not* been in the habit of smoking more tobacco than normal men, but on the other hand, among them the habit of *inhaling* cigarette smoke was very much more frequent.

I think it is important, for the purpose of investigation at any rate, to make a clear distinction between the possible rôle of smoking as a *cause* of duodenal ulcer and the possible aggravating effect of smoking on an already established duodenal ulcer. My inquiry was strictly limited to the first of these two problems, for with regard to the second I consider it established, from the work of Moynihan, Hurst, and others, that smoking is very definitely harmful in established cases of duodenal ulcer. Confusion of these two aspects of the problem has led to much misunderstanding.

I am, Sir, yours faithfully,

O. A. TROWELL.

Physiological Laboratory, Cambridge, Nov. 26th.

To the Editor of THE LANCET

SIR,—As a personal sufferer for many years, I can appreciate the truth of Dr. Hodson's statement made to him by a patient that he could "always produce trouble by resuming smoking." From 1923 to 1930 I underwent almost every form of treatment short of surgical interference for suspected gastric or duodenal ulceration with varying degrees of relief. The X ray examinations were never quite conclusive. After an attack of pneumonia in November, 1930, I gave up smoking for 12 months and during that period was absolutely free of pain or any other gastric symptom. My general health was excellent and my weight normal. Within four weeks of resuming cigarette smoking the gastric trouble returned. Almost continual discomfort, bouts of pain and vomiting, impaired appetite, and loss of weight from 9 st. 5 lb. to 8 st. 5 lb. in three months.

X ray examination eventually showed a shallow ulcerative patch in the lesser curvature of the stomach. A second attack of pneumonia in October, 1933, laid me out for a month and further reduced my weight to 7 st. 4 lb. I made a good recovery and have remained absolutely free of gastric symptoms of any kind whatever. I now have a good appetite and can drink beer, wines, and spirits in moderation. I have not resumed smoking, nor do I dare to take the risk. I am in robust health and my weight keeps stationary.

My first advice to every gastric sufferer is "give up smoking."

I am, Sir, yours faithfully,

LEONARD AVERY.

Knightsbridge, S.W., Nov. 26th.

REACTIONS TO ANAHÆMIN

To the Editor of THE LANCET

SIR,—I have recently had two patients who have exhibited unusual reactions to anahæmin.

CASE 1. *Tropical Megalocytic Anæmia.*—Injections of 2 c.cm. each were given at fourteen-day intervals. Ten to twenty minutes after the fifth injection the patient developed a violent itching all over, followed by a burning sensation in the mouth, diarrhœa, and vomiting. There was also a throbbing sensation in the head, and copper-red patches appeared on the skin. These persisted for four to five hours. The whole picture suggested an allergic reaction. The patient felt very ill, but there appeared to be no cause for real anxiety. A similar, but much milder, attack followed the sixth injection.

CASE 2. *Microcytic Anæmia.*—After the first injection of 1 c.cm. the patient noted a violent itching in both hands, which persisted for two hours or so.

These reactions parallel the abnormal sensitivity to ephedrine, displayed by certain people, to which I have already called attention in your correspondence columns.

I am, Sir, yours faithfully,

Upper Brook-street, W., Nov. 21st. H. W. HALES.

VOLUNTARY HOSPITALS AND THE NEW ACT

To the Editor of THE LANCET

SIR,—I am not a lawyer, but I do not see how the liability of hospitals is altered by Section 2 (2) of the Voluntary Hospitals (Paying Patients) Act, in the way Mr. Bedwell suggests in your issue of Nov. 21st; because "hospitals may now charge" for treatment. Hospitals whose trusts allow them to do so have always been able to charge pay-bed patients for accommodation and maintenance. The sole object of the section is to enable the Charity Commissioners to give the same power to hospitals which do not now possess it. Cost of maintenance, in hospital accounts, includes cost of treatment by resident medical officers, just as it includes cost of nursing. If the statement was true in 1933 that a governing body does not undertake to treat or to nurse, although already numerous hospitals did then charge in this way for treatment and nursing, how can it have become less true in 1936 because under the new Act *some more hospitals, by obtaining permission from* the Charity Commissioners, may now charge in exactly the same way? I do not see, therefore, that the Act affords any new ground for claims, either by resident medical officers as previously suggested, or by patients as now suggested, or that it affects in any way the questions, discussed in 1933, of the liability of hospitals with pay-beds and of the desirability of their insuring against it.

I am, Sir, yours faithfully,

Portman-square, W., Dec. 1st. LUKE.

DYE DERMATITIS OF EYELIDS

To the Editor of THE LANCET

SIR,—Dr. Semon has added a valuable and interesting contribution to the literature of dye dermatitis, but I think his choice of title, "palpebritis," an unhappy one when a simple "dye dermatitis of eyelids" would be so much more informative and helpful. Who would call a dermatitis of the thumb "thumbitis"?

I am, however, more concerned with his suggestion that a dermatitis resulting from an acquired or inherited sensitiveness to some external contact can arise without any similar positive (patch-test) reaction occurring from such contact elsewhere on the skin. In other words, an allergic sensitiveness of this type may be present in one portion of the skin and not in another. Dr. Semon will put me among the sceptics in refusing to accept his diagnosis in two of the cases presented, but I think an impartial judge would require much more evidence than he has brought forward to be convinced of his thesis. Except that he has placed Case 2 between two proven Cases 1 and 3 he has offered no evidence in support of his diagnosis except œdema of the eyelids which, I submit, is not of any significance since it is always present with an acute or subacute dermatitis of eyelids. There is certainly no evidence here, and never (in my submission) has satisfactory or convincing evidence of localised allergic sensitiveness of the skin to external contacts been brought forward.

Dermatitis of the eyelids in the absence of tinting is so common and often so difficult an affection to elucidate that I regard the suggestion of the diagnosis of a dye dermatitis of eyelids without a positive patch-test as a most dangerous one. The same difficulties in diagnosis exist in the case of fur-dye dermatitis of the neck: would Dr. Semon allow his exceptions in this matter also? I do not think we can accept his plea that the skin of the eyelids is so much "more delicate" as a sufficient justification for such a departure from all experience in the matter of sensitisation dermatitis and patch-test reactions.

I am, Sir, yours faithfully,

Leeds, Dec. 1st. JOHN T. INGRAM.

ŒSTRIN AND CANCER

To the Editor of THE LANCET

SIR,—The letter by Dr. Elizabeth Hunt in your issue of Nov. 28th, in which she expresses a fear that the therapeutic uses of œstrin may lead to the development of cancer, calls for an immediate reply. The paper published by one of us (W. C.) in conjunction with Dr. E. Horning early this year (THE LANCET, 1936, i., 247) in which the appearance of mammary cancer after prolonged application of œstrin was recorded, concluded with the following statement:

> "Since œstrin preparations are now being used extensively in gynæcological practice it may be well to point out that the carcinogenic changes here described were produced by the administration of œstrin prolonged over a period representing a considerable fraction of the normal span of life of a mouse and corresponding in man to a period of from 7–10 years, while the therapeutic administration of œstrin preparations in man is, in skilled hands, limited to short periods of a few weeks or months. The development of mammary cancer described in this paper should not, therefore, be used as an argument against the therapeutic application of œstrin preparations."

The experience gained by continuation of the experiments since the publication of that paper gives further support to this statement. Even in the most highly susceptible female animals of a specially inbred strain in which 70 per cent. develop mammary cancer spontaneously after an age of six months, cancer of the mamma does not appear after treatment with œstrin until a period corresponding to about one-fifth of the span of life of the animals has elapsed. In fact, in such animals the appearance of mammary cancer is not greatly accelerated by the continued application of œstrin in comparison with those which develop cancer spontaneously.

We are, Sir, yours faithfully,

W. CRAMER,
W. E. GYE.

Imperial Cancer Research Fund, Dec. 1st.

To the Editor of THE LANCET

SIR,—We feel that Dr. Elizabeth Hunt presents a needlessly alarming picture of the dire possibilities following the use of sex hormones. If she will refer to the original literature on the subject she will find the following scientific evidence:—

1. That œstrin and its derivatives show no sign of carcinogenic properties when tested on animals by the now classical method of Kennaway and his collaborators; and it must be remembered that this was the method employed in the original demonstration of the carcinogenicity of synthetic hydrocarbons.
2. That œstrone will only produce an increase in the incidence of mammary and other carcinoma when injected in large quantities from birth onwards into susceptible strains of mice. It has been shown that even these massive injections into non-susceptible strains will not produce the development of mammary or other carcinoma.
3. That the suggested similarity between the molecular structure of the sex hormones and the carcinogenic hydrocarbons is not nearly so striking as the resemblance between the molecule of œstrone and that of the male sex hormone.

It is therefore unwarrantable to draw conclusions that sex hormones should not be used in the standard manner prescribed to-day, and a comparison with such unnatural and toxic agents as thallium acetate and X radiation is totally unjustified.

It is our opinion that it would be a great disservice to practical therapeutics if the use of sex hormones were to be in any way restricted on account of unsubstantiated speculation.

We are, Sir, yours faithfully,

A. S. PARKES,
National Institute of Medical Research, Hampstead;
P. M. F. BISHOP,
Department of Endocrinology, Guy's Hospital;
E. C. DODDS,
Courtauld Institute of Biochemistry, The Middlesex Hospital.

Dec. 1st.

EPSOM COLLEGE: SHERMAN BIGG FUND

To the Editor of THE LANCET

SIR,—At the representative meeting of the British Medical Association at Oxford this year I met several members who were interested in the work of the Sherman Bigg Fund, which supplements the ordinary work of the Royal Medical Foundation of Epsom College by educational and other grants. I promised some of these inquirers that I would ask you to publish towards the end of the year a statement of the operation of the Fund. It will be seen that the income of Mr. Bigg's bequest has been almost quadrupled this year by donations from various sources. We cannot guarantee that recipients of educational grants will receive similar help in the future; but there is a moral obligation to do so if funds permit. This means that unless we obtain at least as much help next year as we have had in 1936, we may have to discontinue some of the grants; and unless we get increased help, we shall not be able to take on many new cases. As several of my interlocutors at Oxford were Scottish members, they may be interested to know that (quite apart from pensions and foundationerships held by Scots) the Sherman Bigg Fund helped seven Scottish cases during 1936, at a cost of £152.

The council are anxious to augment not only the income but also the capital of the Sherman Bigg Fund; and I appeal to medical men not to forget this when making or remaking their wills. During this year the number of estates left by medical men, running to five figures each, has been larger than I ever remember to have seen before; but legacies have been far below our normal expectation.

I append a brief statement of the Sherman Bigg Fund, and am, Sir,

Yours faithfully,

HENRY ROBINSON,
Chairman of Council, Royal Medical Foundation of Epsom College.

Nov. 27th.

EPSOM COLLEGE, SHERMAN BIGG FUND

Income as at Nov. 30th, 1936

				£	s.	d.
Balance from 1935 account				1	2	7
Income from investments				151	0	1
Grant from Medical Insurance Agency				200	0	0
" " Surrey local medical committee				50	0	0
" " B.M.A. (applied to capital)	£50	0	0			
Private donations for capital purposes	£40	13	0			
				90	13	0
Private donations for income purposes				75	13	0
Amount overspent				0	9	4
				£568	18	0

Expenditure up to Nov. 30th, 1936.

	£	s.	d.
Educational grants for 9 boys	173	0	0
Educational grants for 9 girls	200	0	0
Maintenance grants for 10 widows	105	5	0
Invested to augment capital	89	13	0
Balance, capital uninvested	1	0	0
	£568	18	0

INTRACRANIAL INJURIES OF THE NEW-BORN

To the Editor of THE LANCET

SIR,—I should like to support Dr. Capon in the "increasingly optimistic view" which he takes regarding the prognosis of intracranial birth injury. There is perhaps no condition in pædiatric practice in which prompt and detailed treatment in the neonatal period yields so good a result in so many cases. In the Birmingham Maternity Hospital, during the past ten years, I have seen a large number of such infants and the contrast between the severity of the initial disturbance and the normal mental and physical development of many of these children is amazing. This fact should be recognised, not only because the new-born baby will thereby receive the care due to him, but also because the mother may be confidently reassured and so encouraged in the careful handling which is required in the early months of the baby's life.

I am, Sir, yours faithfully,

Birmingham, Nov. 30th. FRANCES BRAID.

TESTOSTERONE PROPIONATE AND THE PROSTATE

To the Editor of THE LANCET

SIR,—I read with interest Dr. S. Zuckerman's article on the above (THE LANCET, Nov. 28th). Having treated several cases of hypertrophy of the prostate with androsterone, I would like to point out that after several injections of 20 comb units severe hæmorrhage has taken place. This ceases after a few days with rest and cessation of injections. On repeating the injections with smaller doses there is no recurrence of the bleeding. I am of opinion that the hormone sets up a hyperæmia of the gland with exfoliation and absorption, the urine becoming loaded with threads which examined microscopically indicate a shedding of prostatic epithelium. The ultimate results were very satisfactory, as indicated by an absence of annoying symptoms, a great diminution in the quantity of residual urine, and a diminution in the size of the prostate judged by the size of catheter that can be passed. Now that the male hormone has been synthesised, large doses as 250 comb units are advised, and it seems to me a word of caution is necessary for such an active preparation may set up an alarming hæmorrhage. Dr. Zuckerman's experiments, while extremely valuable, offer I suggest little for clinical guidance. Artificial change produced in monkeys by the injection of œstrin cannot be compared to the slow process of enlargement that takes place in the human subject, and it seems to me that his experiments only prove that the one hormone neutralises the other where acute changes have been induced. I do not think that this paper has produced sufficient proof that 250 units injected will act for as long as a "week or two." What one would like to know is the rate of excretion, thus forming an opinion as to whether a "depôt" is formed by a large injection. Therefore it seems to me advisable in order to avoid hæmorrhage and until the rate of excretion has been determined to proceed slowly, with small but frequent doses.

I am, Sir, yours faithfully,

London W., Nov. 28th M. W. BROWDY.

ROYAL NORTHERN HOSPITAL.—On Tuesday, Dec. 8th, at 2.45 P.M., Mr. Philip Hill will lay the foundation-stone of the Beecham laboratories at this hospital.

OBITUARY

SIR EDWIN DELLER, LL.D.

THE tragic death of Sir Edwin Deller, principal of the University of London, occurred on Nov. 30th as the result of an accident incurred while inspecting, three days previously, the new buildings of the University. On Friday, Nov. 27th, in company with Mr. H. Claughton, the clerk of the court of the University, and others, he was ascending the scaffolding of the tower of the new university building in a hoist when a workman with an empty skip fell upon him from the next storey. Sir Edwin was admitted to University College Hospital, where it was found that he was suffering from a fracture of the sixth cervical vertebra. He was suffering severely from shock and recovered from this; but he was paralysed from the chest downwards, though his arms were not affected. He held his own for a day or two, though his breathing was only diaphragmatic, but on Monday his heart failed rapidly and he died shortly after midday.

The loss of Edwin Deller to the University is a very serious one; although he was spared to complete up to a critical stage the great work of reconstruction to which he had devoted the last seven years of a comparatively short life, to a man like Deller a task is never accomplished, but leads always to future effort. He was only 53 at the time of his death, and his career was a clear exhibition of the fact that the mind and resolution of a man are what count in the success of his work rather than any particular studies which he may have conducted or experiences he may have received. A Devon man, he was educated at King's College and University College, London, supplemented by attendance at the London School of Economics. He was appointed principal clerk to the Kent Education Committee, and proceeded at the same time to study for the Bar. He obtained the LL.B. degree of the University of London, and took a secretaryship in the academic department of the University at the critical, even stormy, time when the Haldane Commission was sitting on the whole question of the reconstitution of the educational curriculum. His duties thus gave him an intimate insight into the needs for reform, probably of a keener sort than he would have acquired if he had held any academic post where circumstances attached to the position might have interfered with an all-round view. While thus engaged the European war broke out, and for that period Deller was instructor in military law at the Inns of Court O.T.C. At the conclusion of hostilities he resigned his connexion with the University to become assistant secretary of the Royal Society, but the break with the University was a brief one, for within a year he returned to his alma mater as academic registrar. This post he held for eight years when by an admirable and unexpected selection he was appointed principal of the University, having acted as such for several months previous to the resignation of Dr. Sibley. This thoroughly sagacious appointment came as a surprise to many because of the high academic position which had been held by predecessors in the office, and the choice of Deller had no such momentum behind it; but it was felt that the actual position of the University at the time called for a principal who had displayed the characteristics and the talents of an administrator rather than a scholar. The fiercely debated question of where should be the home of the University had just been settled, and the problems presented by the purchase of the Bloomsbury site and the erection thereon of suitable buildings were many; they had in every direction practical, financial, and sentimental aspects requiring for their solution an accomplished and directing mind. How successfully Deller, working in coöperation with Lord Macmillan, as chairman of the court, dealt with those problems is a matter of history, and the coping stone was set on the vast undertaking when the University of London this year celebrated its centenary, amid world-wide congratulations.

Apart from his fine official record, Deller will be deeply missed. His scholarly presence, his direct good sense, his courtesy, and his humour impressed all on public occasions; they were the external evidences of a charming personality, and the qualities of mind and manner thus displayed marked him in private intercourse.

The Vice-Chancellor of the University of London, Mr. H. L. Eason, writes: Sir Edwin Deller was universally popular, both inside the University and out. He had an attractive and sociable personality, with a great fund of sterling common sense sweetened by a sense of humour. He had an intimate knowledge of the complicated affairs of the University, and his opinion was valued by everyone, as he had a judicial temperament and a wide sympathy, which resulted in his being incapable of ill-will to anyone. He was an admirable draughtsman of official documents, and a distinguished and successful representative of the University in its dealings with outside bodies and persons. The holder himself of a degree in laws, nothing gave him greater pleasure in his life than his election a year or two ago as an honorary Bencher of the Middle Temple. In his Inn he was as popular as he was in the University and the world outside.

His life was a striking example of the sort of career possible to a student of the University of London. Starting without any social or financial advantages, he rose to a commanding position in the educational world. His success was due entirely to his own capacity and to his engaging and lovable personality. He was always devoted to the medical faculty, and as he always said, was more at home in a medical school than in any other institution.

His death when the erection of the new university buildings, with which he had been intimately connected for the last few years, was approaching completion is a great tragedy.

LOUIS WERNER, M.B. Dub., F.R.C.S. Irel.

THE death of Mr. Louis Werner, doyen of the ophthalmological branch of the profession in Ireland, occurred last week at the age of 78. He was educated at Trinity College, Dublin, and obtained the medical degrees of the University of Dublin in 1884. In 1898 he became a fellow of the Royal College of Surgeons in Ireland. He was one of the founders of the Royal Victoria Eye and Ear Hospital just 40 years ago. On the establishment of the National University of Ireland in 1908 Werner was appointed the first professor of ophthalmology in the Dublin College, and he retained this post up to the time of his death, as also his position on the staff of the Royal Victoria Eye and Ear Hospital. Werner contributed frequently to the ophthalmological journals, and having assisted the late Sir Henry Swanzy in the preparation of some of the earlier editions of his well-known book on "Diseases of the Eye" he was solely responsible for the more recent editions. His success as a surgeon-oculist was great, for not only was he a delicate craftsman but he had also a sound scientific outlook and a wide reading of the literature of his specialty. The most modest and unassuming of men he was a genial and kindly friend, cultured and sociable. His pastimes were gardening and golf.

JAMES WILLIAM GRANGE, M.D. Glasg.

THE death occurred suddenly on Nov. 21st of Dr. J. W. Grange, a well-known general practitioner in Kersal, Manchester. Of Scots ancestry, he was born in Liverpool in 1859, the son of a sea captain of the old Allan line who commanded a troop-ship during the Crimean War and conveyed Florence Nightingale on her historic mission. He graduated at Glasgow in 1881 and soon afterwards was appointed house surgeon to Sir Hector Cameron. Later he joined Dr. J. Lawrence in a large practice at Cumnock in Ayrshire. During his long life he saw great advances in the technique of surgery and obstetrics. He grew up in the early days of Listerian teaching in which he was a confirmed believer at a time when it was only very half-heartedly accepted by the profession. Whilst at Cumnock in the middle 'eighties he had a remarkable opportunity of applying these principles. A farmer who had been gored by a bull walked a mile to the surgery supporting his intestines in his hat; Dr. Grange and his partner disinfected the parts, sutured the abdominal wall, and the patient made a complete recovery. Dr. Grange was an active member of the Pathological Society of Manchester and became its president. A man of the highest character and with a gentle and unassuming manner, he devoted himself untiringly to patients of all classes by whom he was universally beloved, as he was esteemed by his colleagues. After 55 years in general practice he retired at the end of last October. Essentially an outdoor man, his chief interests lay in geology, ornithology, and botany, and at one time he held a commission in the 3rd Lanarkshire Rifle Volunteers and was a noted rifle shot. He was a keen fisherman and the last day of his life was spent in fishing on the Dove.

ERNEST ALFRED ELKINGTON, M.B. Lond.

THE death took place on Nov. 17th at the advanced age of 87, at his house in Granville-avenue, Newport, of Dr. Arthur Elkington, the oldest member of the medical profession in the district. He was the son of Dr. George Elkington of Edgbaston, and was educated at King Edward's School, Birmingham. He commenced his medical studies at the Mason College whence he proceeded to the University of Edinburgh and graduated as M.B. Lond. in 1871, his clinical career being one of marked distinction, for he obtained a scholarship in anatomy and was gold medallist in that subject and later in forensic medicine. Going to Paris for post-graduate studies, he was present in the city during the stormy period which immediately followed the Franco-German War, but on returning to England he began at once his long connexion with Newport. He joined a well-known firm of practitioners in the town and accident left him the senior partner shortly afterwards. He added to the cares of the practice, where his skill as an obstetrician was prominent, those of an energetic citizen, and as an urban councillor was vigorous, sometimes in face of great opposition, in promoting schemes for the betterment of the public health of the locality. He assisted in the establishment of the Newport Literary and Social Institute, was a manager of the Newport Church of England Schools—he was a staunch and devout churchman—and took a close interest in the Adam Grammar School. His death is felt in Newport as a public loss.

ARTHUR WALROND SOPER, L.R.C.P. Lond., M.R.C.S. Eng.

Dr. Soper, whose death occurred at Anerley on Nov. 12th, was the son of Mr. H. C. Soper of Little Walton, and was born at Blackheath and educated at Valentine's School there. He proceeded for his medical education to Guy's Hospital and qualified in 1901 with the double English diploma. After serving as house surgeon to the Seamen's Hospital, Greenwich, he came to Anerley as a partner in an established firm and practised there till the end of his life. During the war he served in East Africa and was in charge of a hospital at Dar-es-Salaam when his health suffered severely through the conditions incurred. He seemed however to have recovered his health and conducted his practice with success until shortly before his death. He was ex-president of the Sydenham District Medical Society and medical officer to the L.C.C. Anerley residential school for elder deaf boys; he was held in high regard by his professional colleagues, and his death is mourned by the community in which he had long worked.

WILLIAM ALFRED FITZHERBERT, M.B. N.Z., D.T.M.

Dr. Fitzherbert, who had been but recently appointed medical superintendent of the Hospital for Tropical Diseases in Gordon-street, London, was found dead at the hospital on Sunday, Nov. 22nd, in circumstances that pointed to the possibility of death having been due to a self-administered hypodermic injection.

Dr. Fitzherbert graduated at New Zealand University in 1933, and his first appointment in England was as house physician at the Miller Hospital. He then held the same post at the Hospital for Tropical Diseases, where he became medical superintendent at the beginning of October. During the short time that he had held the post he showed himself admirably fitted for the position. He took keen interest in his work, and, we learn, was an extremely pleasant colleague, being always willing to help his juniors and appreciative of their assistance. His duties were necessarily of an exacting nature, but he did not give the impression to those with whom he worked that his conscientious and able discharge of them was overtaxing his powers. It is fair to the institution which he served to state this as paragraphs have appeared in the press suggesting that he had been the victim of extreme overwork.

WIRELESS FOR HOSPITALS.—The Outram Press have succeeded in raising a fund by voluntary subscription which will install wireless for the patients in all voluntary hospitals in Scotland in which it is not yet available. The sum raised was £18,000, and the installation at the Victoria Infirmary, Glasgow, consisting of 523 head-phones and 7 loud-speakers has just been completed. Even the smallest cottage hospital in the country will be equipped with wireless through this fund.

PARLIAMENTARY INTELLIGENCE

VOLUNTARY EUTHANASIA

IN the House of Lords on Dec. 1st Lord PONSONBY, in moving the second reading of the Voluntary Euthanasia (Legalisation) Bill, regretted that Lord Moynihan was no longer there to move it. This was not, he said, a measure supported by cranks; it had the support of many notable men and women. In many of these cases consideration for others would be uppermost in the mind of the patient. A man's consciousness of being a burden, his knowledge that he himself was no longer of any use, and the prolonged anxiety of others might be as poignant as the suffering itself. As matters stood the onus that was placed on medical men was intolerable.

Lord DENMAN, who seconded the motion, said that it was proposed that persons suffering from an incurable and fatal disease should be allowed by law, if they so desired, to substitute for a slow and painful death a quick and painless one. As the law stood, if a doctor practised euthanasia he did so at the risk of prosecution or of professional ruin.

Lord FITZALAN moved the rejection of the Bill. Notwithstanding the voluntary character of the Bill if it became an Act he would indeed be sorry for the relatives of the patient, but he would be still more sorry for the doctors and for the unfortunate patient. Instead of giving the Bill a classical title it should have been given a good plain English one, understandable by the people and called what it was, a Bill to legalise murder and suicide.

The Archbishop of CANTERBURY said this question must be approached on the broad basis of the clear moral principle that no man was entitled voluntarily to take his own life.

THE MEDICAL ASPECT

Lord DAWSON said he would not like an impression to go out that agonising pain was more a characteristic of disease than it really was. The medical profession had to face the fact that there were diseases which were by their nature incurable. That did not mean that a disease was incurable at the outset, but that diseases reached stages when the profession knew that a cure was not possible. It was their duty and privilege, not being able to cure, to do what they could to make the passage between painful illness and inevitable end as gentle and soft as they could. Medical opinion had changed on this question. Fifty years ago the profession concentrated on the maintenance of life in spite of the nature of the illness, and even sometimes the imminence of death. It was an accepted tradition that it was the duty of the medical man to continue the struggle for life right up to the end. That had changed. There had gradually crept into medical opinion, as there had into lay opinion, the feeling that one should make the act of dying more gentle and peaceful, even if it did involve curtailment of the length of life. That had become increasingly the custom; it was taken as something almost that was accepted. If they once admitted that they were going to curtail life by even a single day they were granting the principle that they must look at life from the point of view of its quality rather than its quantity in such circumstances. There was no disharmony in this matter between the thoughts of the laity and the doctors. They saw a steady growth in the idea of mercy. The question should be left to the gentle and slow growth of opinion both among the laity and the medical profession. He could not conceive of a more intimate relation than that which existed between a patient and the doctor. If the Bill were passed this relationship would be destroyed. Doctors would hesitate to touch it. They would not like to introduce such an atmosphere into the sick chamber and the law would not only remain nugatory but would deter those who were carrying out a mission of mercy.

Lord HORDER said this was not a matter on which the medical profession should be asked to give a lead. He was sorry that medical men had joined in this movement and had associated themselves with propaganda before the Bill came before the House. The doctors, at least in this country, were very sympathetic towards the modern efforts to secure biological control before life began and while life continued. But in the matter of putting an end to life, a new principle entered, and that principle was outside the doctor's province. The doctor's reference was very clear and very generally accepted. It was to cure disease safely and quickly, and if that ideal could not be achieved, his duty must be to prolong life as long as might be, and relieve pain both bodily and mental. He would regard with great concern any sanction which led to a different orientation with respect to the doctor's function, and yet it was difficult to see how such a reorientation could be avoided if the Bill became law. The euthanasia would be administered, if the Bill became law, by others than the customary practitioner attending the patient. That was a very serious fact in itself. It would replace the intimate relationship of doctor and patient, especially towards the close of life, by the introduction of two, or it might be more, strangers from Whitehall. Was that substitution going to be in the patient's interest? The criteria which justified a decision to terminate life would be found to be so difficult in particular cases that he would hesitate to undertake such great responsibilities as would be placed on the referee. The incurability of a disease was never more than an estimate based on experience. If the Bill became law it would in the main apply to cases of cancer, for it was almost only in cancer cases that the criteria laid down could be thought to be fully established. But with the advances of the last ten years and with the prospect of further advances in the near future, the criteria of fatality, if not of curability, would become more and more difficult to establish as time went on. Again, if the Bill became law, would not some persons who were afflicted with illness misinterpret the feelings of their friends and consider that they should avail themselves of the permission to end their lives?

A FREE VOTE

Viscount GAGE, Lord-in-Waiting, replying, said that so far as the main principle of the Bill was concerned the Government would leave it to a free vote of the House. If however it received a second reading, in view of the present congested state of business, the Government could not give any definite guarantee of what facilities could be afforded the measure in the House of Commons.

The motion for the rejection of the Bill was carried by 35 votes to 14.

HOLIDAYS WITH PAY

IN the House of Commons on Nov. 27th Mr. ROWSON moved the second reading of the Annual Holiday Bill. It was, he said, a measure to make it obligatory on the part of employers to give to every employed person an annual holiday of eight consecutive days with pay. He understood that well over three million people in this country were getting holidays with pay by agreement and negotiation. Yet some 75 per cent. of the workers of this country were still without this boon. He submitted that the charge on industry would be infinitesimal. In scarcely any of the big industries in which the bulk of trade unionists were employed were holidays with pay granted. The attitude of the British Government to this question at the International Labour Conference was such as to make a Briton feel ashamed rather than proud of his country; 28 countries had shown a desire for a convention, and many countries already had legislation on the subject.—Mr. RILEY seconded the motion.—Mr. GRIMSTON moved an amendment:

That this House, while welcoming the continuous development of the practice of granting holidays with pay and favouring the extension of this practice by voluntary agreement, declines to give a second reading to a Bill which interferes with the free negotiation of the terms of employment between employers and employed and pays no regard to the great variety of circumstances in the many different industries and occupations which would be affected.

There was, he said, no difference between himself and the Labour Party on the principle underlying the Bill; but those on the Government side of the House believed in the greatest measure of liberty being left to individuals and associations consistent with the welfare of their fellow-men. The Bill was an infringement of the liberty of the trade unions and the employers' organisations to negotiate between themselves.

Lieut.-Colonel MUIRHEAD, Parliamentary Secretary to the Ministry of Labour, said that the system of voluntary collective agreement on the subject of holidays with pay had been responsible in the last six years for a considerable measure of progress. Was it then desirable to approach the problem by means of legislation? It was not a question of our being behind the countries which were legislating on this question, but rather we were ahead of them. France, Germany, Italy, Czechoslovakia, Poland, Belgium, and Spain, which had legislated on the subject, all had wages lower than ours. The system of voluntary collective agreement had brought the workers of this country a higher standard of life than that of most European countries.

The amendment was negatived and the motion for the second reading of the Bill was agreed to without a division.

QUESTION TIME

WEDNESDAY, NOV. 25TH

Air-raid Precautions

Mr. CARY asked the Home Secretary if he could give the House any information as to further progress in respect of air-raid precautions, with special reference to the provision of gas-masks, gas-proof shelters where practicable, the provision of blast-proof and splinter-proof steel screens for windows, and the supply of bleaching powder for de-contamination purposes; and whether it was the intention of his department to carry out, in conjunction with the appropriate municipal authorities, specific tests to familiarise the public in the adoption and use of the protective measures in question.—Mr. G. LLOYD, Under-Secretary, Home Office, replied: I am satisfied that substantial progress is being made in the organisation of air-raid precautions. Mass production of respirators for the civilian population is about to begin and arrangements are in train for the provision of adequate supplies of the materials required in the event of war, such as bleaching powder. The public will be advised to remain indoors in a room which has been protected against gas and splinters, and it is not proposed to recommend the use of steel screens for windows as sandbags are a better protection. Use is being made of the facilities for the training of the public in measures of air-raid precautions, which already exist in various parts of the country, and every effort will be made to encourage local authorities to undertake this work, usually in conjunction with the St. John Ambulance Brigade or British Red Cross Society.

Two-shift System for Women and Young Persons

Mr. RHYS DAVIES asked the Home Secretary whether he had yet set up an advisory committee to which he could refer important questions in connexion with the operation of the two-shift system for women and young persons; if so, whether he would state the names of the committee; and whether any order had been issued under Section 1 of the Employment of Women and Young Persons Act, 1936.—Mr. G. LLOYD replied: Yes, Sir. The promised committee was set up last month, and the members are as follows: Sir Gerald Bellhouse, chairman; Mr. Thomas Ashurst, secretary of the Cotton Spinners' and Manufacturers' Association; Brigadier-General A. C. Daylay, D.S.O., chairman of the Birmingham and District Engineering Employers' Association; Miss F. Hancock, organiser, Transport and General Workers Union; Mrs. Stuart Horner, M.B., B.S., H.M. medical inspector of factories; Mr. W. Kean, J.P., general secretary of the National Union of Gold, Silver, and Allied Trades; Mr. H. M. Moulden, general secretary of the Leicester and Leicestershire Amalgamated Hosiery Union; Mr. A. J. Palfreyman, chairman of the National Federation of Hosiery Manufacturers' Associations; and Miss F. I. Taylor, H.M. deputy chief inspector of factories. The committee was asked to give immediate consideration to the procedure to be adopted for consulting the workers and taking the secret ballots required by the Act, and a draft Order to give effect to their recommendations has now been issued. Copies of the draft Order can be obtained from H.M. Stationery Office.

Motorists and the Use of Yellow Headlights

In reply to Mr. SALT, Mr. HORE-BELISHA, Minister of Transport, said: I am aware of the Order issued by the French Minister of Public Works to compel motorists in France to use yellow headlights on their vehicles as from April, 1st, 1937, in the case of new cars and from Jan. 1st, 1937, for all other motor vehicles. Expert opinion in this country which I have consulted, however, holds that the physiological advantages of this are not proved. The Medical Research Council and the Department of Scientific and Industrial Research have undertaken to pursue jointly further investigations and I will certainly take their conclusions into account.

THURSDAY, NOV. 26TH

Health of Unemployed Boys

Mr. W. J. STEWART asked the Minister of Labour the percentage of rejections on medical grounds of applicants for the juvenile transfer centres and the men's instructional centres in Durham county for the years 1931, 1932, 1933, 1934, and 1935; and what provision was being made for the medical inspection and treatment of those presenting themselves for training.—Mr. ERNEST BROWN replied: The Junior Transfer Centre in Durham was opened in July, 1935, and, during the year from July, 1935, to June, 1936, 571 boys were submitted for medical examination, of whom 109—i.e., 19·1 per cent., were rejected on medical grounds. Boys rejected for reception into the centre are those who are considered by the medical officers to be permanently unfit for employment away from home or to be in need of medical treatment. The centre is conducted by the education authority, and they have recently been asked to consider accepting at the centre boys in need of the simpler kinds of medical treatment. The authority already have power to provide medical inspection and treatment for boys attending junior instruction centres. As regards instructional centres, the percentage of men in the county of Durham who were rejected on medical grounds during the period January to October, 1936, was about 17 per cent.; it is regretted that figures for the earlier years are not available. Young men who are rejected owing to dental trouble can receive remedial treatment at the instructional centre at Hamsterley, and arrangements are being made for the opening of two local training centres in the county of Durham at which young men who are suffering from minor physical disabilities will be able to receive treatment.

Mr. STEWART: Is the right hon. gentleman aware that a percentage of these rejections is owing to the fact that many of these boys and men are suffering from underfeeding due to the operation of the means test in many of their homes?

Mr. BROWN: I do not accept that.

Mr. LAWSON: Does the right hon. gentleman not consider it very unsatisfactory that 19 per cent. of the young men who are examined are found unfit for the comparatively light work for which they have offered themselves and is he not prepared to recommend that the Government should do something rather serious in the matter?

Mr. BROWN: The answer is that we are taking medical steps to do that.

Mr. GRAHAM WHITE asked the Minister of Labour whether he was considering any action in regard to the health of unemployed young persons between the age of 14 and 18, the time when the need for good nutrition was greatest, and when the benefit of school meals, milk, and physical training was no longer available.—Mr. ERNEST BROWN replied: In nearly all areas in which there is substantial unemployment among boys and girls between 14 and 18 years of age junior instruction centres or classes are provided by the local education authority which unemployed boys and girls may be required to attend. The instruction given at the centres normally includes physical training, and arrangements may be made for the supply of milk. Medical treatment may also be provided at centres in England and Wales. The question of providing meals at the centres is being considered by the National Advisory Councils for Juvenile Employment

MONDAY, NOV. 30TH

Government and Supplies of Milk

Mr. SANDYS asked the Prime Minister (1) whether, in view of the undertakings given by him and by the Minister of Health that upon receipt of the report of the Milk Reorganisation Commission the Government would consider the extension of the existing schemes for the provision of milk, either free or at cheap rates to needy consumers, he was now in a position to make a further statement; and (2) whether, in view of the declared policy of His Majesty's Government to encourage the consumption of liquid milk, they intended to adopt measures to give effect to the relevant recommendations of the Milk Reorganisation Commission.—Mr. MORRISON, Minister of Agriculture, replied: The recommendations of the Milk Reorganisation Commission which, as my hon. friend is aware, cover a very wide field, will receive the careful consideration of the Ministers concerned. I am not in a position at present to make any further statement.

Cost of Living Inquiry and Nutrition Data

Mr. SANDYS asked the Minister of Health when the present investigation into the distribution of working-class family expenditure would be completed; and whether the scope of this inquiry was such as would provide all the necessary data to enable the Government to formulate a comprehensive nutrition policy.—Mr. HUDSON replied: It is not yet possible to say when the necessary inquiries will be completed, but they are being pursued with all necessary expedition.

Mr. SANDYS asked the Minister whether the scope of the inquiry was such as would provide all the necessary data to enable the Government to formulate a comprehensive nutrition policy?

Mr. HUDSON said that the hon. Member could rely on the Government getting all the necessary facts together before it formulated any policy.

In answer to a further question by Mr. SANDYS Mr. HUDSON said that perhaps the hon. Member had better wait and see the policy.

Mr. SANDYS gave notice that he would raise the question again at the earliest opportunity.

Overcrowding Regulations

Mr. TEMPLE MORRIS asked the Minister of Health whether he was satisfied that when the anti-overcrowding regulations of the Housing Act came into operation next year an adequate supply of accommodation for those who were dispossessed would be forthcoming.—Sir KINGSLEY WOOD replied: I would remind my hon. friend that an occupier who is overcrowded on the appointed day is not committing any offence, and that no question of his removal arises, until he is offered alternative accommodation within the meaning of the Act.

TUESDAY, DEC. 1ST

Typhoid Fever Outbreak at Bournemouth

Mr. GROVES asked the Minister of Health whether the medical representative of the Ministry who had been inquiring into the Bournemouth typhoid fever outbreak had furnished him with definite proof that a certain milk-supply was the cause of the outbreak; and, if so, he would state the nature of that proof.—Sir KINGSLEY WOOD replied: The report submitted to me on this outbreak showed that all the primary cases of enteric fever which occurred during the outbreak had consumed milk from the same source of supply, and that after this supply was pasteurised no further primary cases had occurred.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Comdr. W. G. C. Fitzpatrick to *Victory* for R.N.B., and to *Malaya*.

Surg. Comdr. (D) J. L. Edwards to *President* for course.

Surg. Lt.-Comdrs. T. L. J. Barry to *Erebus*, and L. P. Spero to *Pembroke* and to *Shropshire*.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Sub-Lt. P. de B. Turtle promoted to Surg. Lt.

Proby. Surg. Lt. E. M. Buzzard to be Surg. Lt.

ROYAL ARMY MEDICAL CORPS

The Commander-in-Chief in India has made the following appointments:—

Lt.-Col. K. Comyn, R.A.M.C., from officiating Assistant Director of Hygiene and Pathology, Eastern Command, is confirmed in that appointment.

Brevet Lt.-Col. J. A. Manifold, D.S.O., R.A.M.C., has been confirmed as Deputy-Director of Hygiene and Pathology at Army Headquarters, New Delhi.

Short Service Commissions: Lts. A. M. Pugh and J. H. Taylor to be Capts.

REGULAR ARMY RESERVE OF OFFICERS

Lt.-Col. G. Ormrod and Maj. A. H. Jacob, having attained the age limit of liability to recall, cease to belong to the Res. of Off.

Capt. G. R. A. de M. Rudolf from Supp. Res. of Off., R.A.M.C., to be Capt.

SUPPLEMENTARY RESERVE OF OFFICERS

Lt. W. H. Valentine to be Capt.

TERRITORIAL ARMY

I. M. D. Grieve and L. F. Evans to be Lts.

A. F. Dunn (late Offr. Cadet, Glasgow Univ. Contgt. (Med. Unit), Sen. Div., O.T.C.) to be Lt.

Supernumerary for Service with O.T.C.: J. H. Mayer (late Cadet Corpl., Brighton Coll. Contgt., Jun. Div., O.T.C.) to be Lt. for duty with the Univ. of Lond. Contgt. (Med. Unit), Sen. Div., O.T.C.

ROYAL AIR FORCE

Flight Lt. S. R. C. Nelson to No. 47 (Bomber) Squadron, Khartoum.

RESERVE OF AIR FORCE OFFICERS

Flying Offr. A. C. Fraser resigns his commission consequent on the conversion of the Special Reserve to the Auxiliary Air Force.

AUXILIARY AIR FORCE

No. 503 (County of Lincoln) (Bomber) Squadron: A. C. Fraser is granted a commission as Flying Offr.

CAR PARK ON HOSPITAL SITE.—The Institute of Medical Psychology has turned the new site for its hospital in Store-street, London, W.C., into a car park for the time being, in order to raise some of the £5000 needed before building can begin. The new building will take more than a hundred in-patients and will be a centre for training in psychological medicine.

GORDON HOSPITAL, LONDON.—Mr. John Dewar on Nov. 27th laid the foundation-stone of the new extensions to this hospital in Vauxhall Bridge-road, where two new sections are being built at a cost of £80,000. A third section will be necessary to complete the scheme, and the hospital will then contain 100 beds. A sum of £43,000 will be required for this final work. The buildings now under construction will be opened free of debt owing to the generosity of Mr. Dewar who has given £79,110 to the hospital.

MEDICAL NEWS

University of Cambridge

On Nov. 28th the following degrees were conferred:

M.D.—E. G. Recordon, G. J. Meikle, E. M. Dimock, and H. L. H. H. Green.

M.B.—A. D. Hodges.

B.Chir.—E. B. Z. Masterman, E. M. Dimock, and H. L. H. H. Green.

University of Oxford

On Nov. 21st the degree of doctor of medicine was conferred on D. W. Geidt, and the degree of master of surgery on H. J. B. Atkins.

A readership in bacteriology is to be established in the University. The appointment will be made for seven years in the first instance, and will carry a salary of £750 a year. The reader will be responsible for instruction and research in the department of pathology, under the direction of the professor.

University of Glasgow

Dr. J. W. S. Blacklock, at present university lecturer on the pathology of diseases of infancy and childhood at the Royal Hospital for Sick Children, Glasgow, has been appointed to the St. Mungo (Notman) chair of pathology tenable at the Royal Infirmary, in place of Dr. John Shaw Dunn, who has succeeded Sir Robert Muir, F.R.S., in the chair of pathology at the Western Infirmary.

Dr. Blacklock, who is 39, studied medicine at Glasgow, and
in 1916–17 served with the
(R.N.V.R.). He graduatec
the Brunton memorial priz
of his year. After holding
mary and the Royal Infirmary he was appointed assistant to Sir Robert Muir, and assistant pathologist to the Western Infirmary. In 1924 he was promoted to the lectureship on pathological histology, and in the same year he became pathologist and director of the pathological institute of the Royal Hospital for Sick Children. Previously he had worked at
problems connected
clerosis, and under
histological aspects
He now turned his attention
in 1932 his observations on the
the disease were published by
in their Special Report Series
r he had been awarded the Bella-
.D. thesis, and in 1933 he was

of Glasgow. Apart from tube
work has been concerned with
and new growths in infancy and childhood.

Society of Apothecaries of London

A Yeomanry dinner was held on Nov. 24th, the master, Dr. A. P. Gibbons, presiding over a distinguished group of guests which included the director-generals of the medical services of the Navy, Army, and Air Force, the chief medical officer of the Ministry of Health, the presidents of the Royal Society of Medicine, the Hunterian Society, and the Harveian Society, the medical officer of health for the Port of London, the head master of Epsom College, and the deans of the medical faculties of Oxford, Cambridge, London, and Sheffield, and of many metropolitan hospitals. After the loyal toasts, Sir William Willcox introduced the immediate past master Sir Arthur MacNalty, chief medical officer of the Ministry of Health, to receive the honorary freedom of the society, which was conferred on him by the master. Sir William recorded briefly the public services rendered by him whom they were honouring, and Sir Arthur briefly responded. The toast of Prosperity to the Society was proposed by Sir Arthur Robinson, and responded to in suitable terms by the master, who referred amusingly to the strictures passed on the Society by THE LANCET in ancient days—days now happily past. The toast of The Guests was proposed by Mr. Hugh Lett, and replies came from Sir John Parsons, president of the Royal Society of Medicine, and Mr. Girling Ball, dean of the faculty of medicine, University of London. A large company was present at a very successful function.

British Institute of Philosophy

An address entitled Culture, Philosophy, and Faith will be given to this institute by Lord Eustace Percy on Tuesday, Dec. 15th, at 8.15 P.M., at University College, Gower-street, W.C. Cards of admission can be obtained from the director of studies at University Hall, 14, Gordon-square, W.C.1.

Society for Constructive Birth Control

A general meeting of this society will be held on Tuesday, Dec. 8th, at 8 P.M., at 26, Portland-place, W., when Mrs. Marie Stopes, D.Sc., will lecture on some biological and physiological details of fertility.

Royal Surgical Aid Society

The seventy-fourth annual meeting of this society will be held on Tuesday, Dec. 8th, at 4 P.M., at the Mansion House, London, E.C., when the Lord Mayor will take the chair. The speakers will include Mr. Robert Milne.

British Empire Cancer Campaign Studentship

A studentship is offered to a young recently qualified medical graduate who wishes "to acquire experience in cancer research from the biological point of view and particularly from the virus aspect." The studentship is tenable at the Lister Institute and for the first year the salary will be £300. Further particulars will be found in our advertisement columns. Applications should be sent to the secretary of the Campaign, 12, Grosvenor-crescent, S.W.1, before Dec. 31st.

National Birth Control Association

A public meeting of this body, with which is incorporated the Birth Control Investigation Committee, will be held on Monday, Dec. 7th, at Friends House, Euston-road, at 5 P.M., when Prof. H. J. Laski will speak on National Welfare and the Problem of Population. Lord Horder, president of the association, will take the chair, and invitation cards can be obtained from the secretary of the association at 26, Eccleston-street, London, S.W.1.

Mechanisation in Offices

A conference on the effect of office machinery upon clerical workers has been summoned by the Women's Employment Federation and the Joint Consultative Council. It will discuss the pay and prospects of workers in mechanised offices and their physical conditions of work, and will touch on the displacement of men by women, the deadening effect of routine work on intelligent workers, and the evils of creating a new blind-alley occupation. The conference is open to the public, and will be held at the Millicent Fawcett Hall, Tufton-street, London, S.W., at 6 P.M., on Thursday, Dec. 17th. Air Vice-Marshal Sir David Munro, secretary of the Industrial Health Research Board, will preside.

The Medico-Legal Society: Dinner to Mr. and Mrs. Ernest Goddard

On Nov. 26th, at the Langham Hotel, a dinner was given to Mr. Ernest Goddard on the occasion of his retirement from the office of honorary secretary of the Medico-Legal Society, a position he has held for the last 18 years. At Mr. Goddard's request the dinner was limited to past and present officers of the society and the proceedings were as informal as possible. The president, Mr. C. Ainsworth Mitchell, D.Sc., referred to the great amount of work that Mr. Goddard had carried out as secretary of the society during his 18 years of office. Dr. Henslowe Wellington, the founder of the society, in proposing the health of Mr. and Mrs. Goddard, said that the history of the society could be divided into two periods. During the first 18 years the membership was small and the society had to contend with all kinds of difficulty, but for the last 18 years the history of the society had been one of growth and increased influence, and he did not think that it was entirely a coincidence that this period corresponded to Mr. Goddard's secretaryship. Mr. Goddard, replying for himself and for Mrs. Goddard, said that he was very grateful for all the kindness he had received during the past 18 years from the members and officers of the society, and not least for the expression of goodwill since his retirement. He said that the growth of the society was a natural one and that he had little to do with it and he predicted that it would continue to grow. He thought, however, that the man who had played the greatest part in bringing about this growth was their former president, Lord Atkin. He added complimentary references about the other presidents under whom he had served.

New Hospital for Herne Bay

A new hospital, to replace the cottage hospital, was opened at Herne Bay on Nov. 23rd. It has cost £25,000.

Royal Society of Medicine

The house and library of this society will be closed from Thursday, Dec. 24th, to Saturday, Dec. 26th.

Medical Easter Cruise

A cruise is being arranged by the *Bruxelles-Médical* starting from Marseilles on March 18th and returning on April 6th. Visits will be paid to Sicily, Egypt, Palestine, and Syria. Further information may be had from the Bureau des Croisières et Voyages Médicaux, 29, Boulevard Adolphe Max, Brussels.

Fellowship of Medicine and Post-Graduate Medical Association

On Wednesday, Dec. 16th, at 8.30 P.M., Dr. S. Levy Simpson will lecture on Adrenal at the National Temperance Hospital. On Saturday, Jan. 2nd, a special demonstration on tuberculosis will be given for M.R.C.P. candidates at Preston Hall, and if a sufficient number of entries are received again on Jan. 9th. On Tuesday, Jan. 5th, Mr. R. Lindsay Rea will give a special demonstration for M.R.C.P. candidates on the fundus oculi, at 8.30 P.M. Further information may be had from the secretary of the fellowship, 1, Wimpole-street, W.

British Health Resorts Association

The annual general meeting of this Association was held at the Institute of Hygiene, Portland-place, on Nov. 27th. Lord Meston, who presided, referred to the loss which the Association had sustained by the deaths of Lieut.-Colonel R. H. Elliot and Mr. Reginald Vaughan. Mr. Vaughan had always placed his special knowledge at the disposal of the Association. To Colonel Elliot the Association owed its inspiration and inception. A great deal of labour, he said, lay behind the pages of the annual report. Owing to the Association's activities British health resorts were no longer regarded as places to be visited only during the school holiday. Much useful medical knowledge had been gathered together and made available in the handbook. Dr. Alfred Cox said that the great achievement of the Association had been to arouse the nation to the fact that the holiday habit was gaining ground. It was a mistake for a resort to close down after the middle of September; by restricting their season resorts that did this were losing a chance of benefiting themselves and the community. The handbook was being improved year by year; it was now proposed to include a section showing what provision was made to encourage visitors in the spring, autumn, and winter. The work of the Association should, he thought, be extended to cover a study of the whole of England and to discover and place on record which places were most suitable for (say) rheumatic people to live in. This was, he said, the only country in which hydrology and climatology had not received recognition by the universities and the Ministry of Health. The Association was hoping to get this put right. Mr. A. Seymour Harding said what the Association needed was an income of £3000 per annum—a modest sum to ask, when the number of health resorts was taken into consideration. Dr. Fortescue Fox said that the Association's great need was for men who would think not of the prosperity of their own locality alone, but who would help to develop work which was of the greatest value to the nation. The twentieth century spa need not be a place of great magnificence, but it must make a real contribution to the health of the people. It was that feeling which had led the Association to visit various resorts to see what they were doing and to give advice. On the Continent such visitations were regularly paid, reports prepared, and alterations made. Subsequently a second visitation would be made, and an official statement then issued regarding the value of the resort and the suitability of its waters. The science of climate was not studied in this country; we had several different climates round our coasts waiting to be investigated. A seaside resort that wanted to gain fame should initiate such a scientific investigation of its climate. Alderman Kidston, speaking for the British Spas Federation, contrasted the support given to hydrological and climatological work in other countries with the lack of support in this country.

Amalgamation of Flag-days

Seventy-seven voluntary hospitals which in the past have raised about £30,000 a year by means of street collections or flag-days in London have agreed, at the suggestion of the commissioner of police, to combine their appeals for 1937, and there will be no more flag-days until the week preceding the Coronation, May 2nd to 8th, 1937, which has been fixed as Hospitals Week. On Tuesday, the 4th, there will be one street collection for the whole of the metropolitan boroughs, and on Saturday, the 8th, one for the outlying areas. During Hospitals Week it is expected that at least 50,000 voluntary workers will sell emblems. Headquarters have been established at 36, Kingsway, W.C.2.

M.R.C. Studentships and Fellowships

The Medical Research Council have awarded the following post-graduate studentships and research fellowships in clinical science and experimental pathology:—

POST-GRADUATE STUDENTSHIPS

John Vivian Dacie, M.B., M.R.C.P. Lond. resident pathologist, King's College Hospital;

James Hardman, M.B. Birm., F.R.C.S Eng., clinical assistant in surgery, Royal Infirmary, Sheffield;

Alan Robert Kelsall, B.Chir. Camb., late house physician, St. Bartholomew's Hospital, London; and

Freda Bury Pratt, M.D. Liverp., late assistant clinical pathologist, Elizabeth Garrett Anderson Hospital.

RESEARCH FELLOWSHIPS

Lelise Ivan Mark Castleden, M.D. Lond., hon. medical tutor, British Postgraduate Medical School, London;

Denys Arthur Jennings, B.M. Oxon., late house physician, St. Thomas's Hospital; and

Joyce Wright, B.M. Oxon., late assistant bacteriologist, New Somerset Hospital, Capetown.

These studentships and fellowships are awarded for work in Great Britain on a whole-time basis; their objects are to encourage young British medical graduates of special ability and original mind towards becoming investigators in those branches of medical science which are concerned directly with disease as it occurs in human beings. The studentships are awarded for personal maintenance during a year's training in research methods under a suitable director, and the fellowships as probationary appointments for research on specific problems of disease.

Atmospheric Pollution

The half-yearly conference of local authorities and other organisations coöperating with the Department of Scientific and Industrial Research met on Nov. 30th at the East Greenwich fuel research station. Dr. H. A. Des Voeux presiding, when Mr. G. M. B. Dobson, F.R.S., presented a report on the progress of investigations. An intensive survey of pollution in and around the city of Leicester is to be made; systematic observations with various measuring instruments begin to-day at 12 stations in the area. After the meeting the representatives studied the two fundamental and closely related factors involved in the reduction of atmospheric pollution by coal-burning—the nature of the fuel and the appliance in which it is burned. (1) From the varieties available is selected the fuel most suitable for a given purpose. The preparation of coal for the market, by cleaning and grading, assists materially in the reduction of pollution; the cleaning yields a coal of lower ash content thus decreasing the potential emission of ash in the form of grit, while grading the coal according to size reduces the content of small particles which may be blown from the fuel bed by the draught. (2) The aim in coal-burning appliances is towards greater control over the combustion; this is obtained by uniform air distribution to the fuel and the regulation of air-supply, thereby promoting efficient combustion and a reduction of the unburned products passing into the atmosphere. In the domestic field attention is being paid to the production from coal of a free-burning smokeless fuel, by removing the greater part of the volatile matter which is responsible for most of the smoke nuisance, to the design of appliances for burning such fuel, and to the modification of domestic appliances so that raw coal may be burned more efficiently and with less pollution. The exhibits included samples of cleaned and graded coal, a Lancashire boiler fired with pulverised fuel, solid fuel converted into producer gas for use with a boiler, and methods for measuring and sampling both industrial and domestic smokes.

Appointments

ANDERSON, W. V., F.R.C.S. Edin., has been appointed Assistant Surgeon to the Princess Margaret Rose Hospital for Crippled Children, Edinburgh.

CAMPBELL, D. J., M.R.C.P. Edin., D.P.H., Venereal Diseases Medical Officer a [illegible] nsby.

CAWTHORNE, TERENC[illegible] [illegible] nt Aural Surgeon to the National [illegible] London.

PARTRIDGE, G. T., M.B. Camb., F.R.C.S. Eng., Surgical Registrar to St. Vincent's Orthopædic Hospital, Pinner.

STIRLING, ROBERT, M.D., F.R.C.S. Edin., Assistant Surgeon to the Princess Margaret Rose Hospital for Crippled Children, Edinburgh.

TAIT, F. SELBY, M.B. Birm., F.R.C.S. Eng., Acting Hon. Surgeon and Registrar at the Birmingham and Midland Hospital for Women.

Certifying Surgeons under the Factory and Workshop Acts: Dr. J. R [illegible] strict, Shetland); Dr. J. C. LEE (Ne[illegible] and Dr. J. H. W. WHARTON (Roade [illegible]

Vacancies

For further information refer to the advertisement columns

Aberdeen Royal Hospital for Sick Children.—Hon. Asst. Surgeon to Ear, Nose, and Throat Dept.

Aberdeen Royal Infirmary.—Hon. Jun. Asst. Surgeon for Ear, Nose, and Throat Dept.

Ashford Hospital, Kent.—Res. M.O., £150.

Aylesbury, Royal Buckinghamshire Hospital.—Second Res. M.O., at rate of £150.

Bedford County Hospital.—First H.S., at rate of £155.

Birmingham, Erdington House.—Asst. Res. M.O., £300.

Birmingham, Queen's Hospital.—Res. Med. Reg., £200.

Bolton Royal Infirmary.—H.P. and two H.S.'s, at rate of £200 and £125 respectively.

Bradford Royal Infirmary.—Asst. Physicist, £300.

Brighton Municipal Hospital.—Third Res. Asst. M.O., £300.

Brighton, Sussex Eye Hosp., Eastern-road.—H.S., at rate of £150.

Bristol General Hospital.—Two H.P.'s, three H.S.'s, Res. Obstet. O., H.S. to Spec. Depts., each at rate of £80. Also Cas. H.S., at rate of £100.

British Empire Cancer Campaign, 12, Grosvenor-crescent, S.W.—Studentship, £300.

British Postgraduate Medical School, Ducane-road, W.—First Asst. in Obstet. Dept., £300–£500.

Cambridge, Addenbrooke's Hospital.—H.P., at rate of £130.

City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, E.—Two Hon. Asst. Anæsthetists.

Colchester, Essex County Hospital.—Asst. H.S., £120.

Connaught Hospital, Walthamstow, E.—Clin. Asst. to Ophth. Dept., 1 guinea per session.

[illegible] *Hosp.*—Deputy Med. Supt., £400.

[illegible] *Dispensary.*—Res. Anæsthetist,

[illegible] *ium for Women and Girls.*—

[illegible] *Pevensey-road.*—H.S., £100.

[illegible] *&c.*—Hon. Anæsthetists.

Hereford, Herefordshire General Hospital.—Hon. Surgeon.

Hertford County Hospital.—Hon. Asst. Anæsthetist.

Hospital for Tropical Diseases, Gordon-street, W.C.—H.P., at rate of £120.

Hospital for Women, Soho-square, W.—Hon. Clin. Assts. to Out-patients. Also Registrar, £75.

Hull Royal Infirmary.—H.S. for Branch Hospital, £160. Also Second Cas. O., £150.

Ilford, King George Hospital.—Two H.S.'s, each at rate of £100.

Ipswich, East Suffolk and Ipswich Hospital.—Three H.S.'s to Special Depts., each £144.

King Edward VII Sanatorium, Midhurst.—3rd Asst. M.O., £300.

Kingston and District Hospital.—Visiting Surgeon. Also Res. Asst. M.O., at rate of £375.

Leeds Education Committee.—Asst. School M.O., £500.

Liverpool, Hahnemann Hospital, Hope-street.—Res. M.O., at rate of £120.

Liverpool, St. Paul's Eye Hospital, Oldhall-street.—H.S., at rate of £145.

London County Counc[illegible] ng M.O., £200.

London Homœopathic [illegible] *mond-street, W.C.*—Surgeon in Charg[illegible] chano-therapy Dept.

London Hospital, E.—[illegible] Reg., £300.

Manchester, Ancoats [illegible] H.S. (Aural) and H.P., at rate of £100.

Manchester Ear Hospital, Grosvenor-square, All Saints'.—Visiting Anæsthetist.

Manchester, Park Hosp., Davyhulme.—Res. Obstet. Officer, £400.

Manchester, St. Mary's Hospitals.—Four H.S.'s to Special Depts., each at rate of £50.

Manchester, Withington Hospital.—Sen. Cons. Obstet. and Gynæcologist, at rate of £100.

[illegible] *nd-road, E.*—Asst. M.O. to Physio-

[illegible] *firmary.*—3rd H.S., at rate of £125.

[illegible] sst. M.O., £400.

[illegible] V.W.—Cas. O.

[illegible] Physicians,

North Riding of Yorkshire C.C.—Asst. Tuber. M.O., £600.

Norwich, Norfolk and Norwich Hospital.—H.P., H.S.'s to Spec. Depts., and Cas. O., each at rate of £120.

Nottingham City Hospital.—H.S., at rate of £150.

Perth Royal Infirmary.—Sen. Res. Surg. O., £250.

Pontefract General Infirmary.—Res. M.O., at rate of £150.

Princess Elizabeth of York Hospital for Children, Shadwell, E.—Res. M.O., £200. Also H.S. and Cas. O., each at rate of £125.

Queen's Hospital for Children, Hackney-road, E.—Clin. Asst. to Surg. Out-patients, 5*s.* per attendance.

Rochdale, Birch Hill Hospital.—Jun. Res. M.O., at rate of £225.

Rochdale Infirmary and Dispensary.—H.P., £150.

Royal Cancer Hospital, Fulham-road, S.W.—H.S. to Radium Dept., at rate of £200. Also Sec. Asst. Pathologist, £250.

Royal Masonic Hospital, Ravenscourt Park, W.—Res. Surg. O., at rate of £250.

St. Bartholomew's Hospital, E.C.—Chief Asst. in X Ray Diagnostic Dept., £500.

St. John's Hospital, Lewisham, S.E.—H.S. and Cas. O., each at rate of £100.

St. Peter's Hospital for Stone, Henrietta-street, W.C.—Clin. Assts. to Hon. Staff.

St. Thomas's Hosp., Medical Unit, S.E.—First Asst., £500–£600.

Salford Royal Hospital.—Res. Surg. O., £200. Also two H.S.'s, each at rate of £125.

Southampton County Borough.—Clin. V.D.O., Pathologist, and Asst. M.O.H., £750.

South-Eastern Hospital for Children, Sydenham, S.E.—Res. M.O., at rate of £100.

Southend-on-Sea General Hosp.—Res. Obstet. Officer, at rate of £100.

Stoke-on-Trent Orthopædic Hosp., Hartshill.—Asst. Surgeon, £600.

Swansea County Borough.—Asst. M.O., £500.

Swansea General and Eye Hospital.—H.P. and H.S., each at rate of £150.

Torquay, Torbay Hospital.—Hon. Aurist and Laryngologist.

Warwick, King Edward VII Memorial Sanatorium, Hertford Hill.—Jun. Asst. M.O., £250.

West London Hospital, Hammersmith-road, W.—Cas. O., £250. Also Res. Cas. O., H.P., and two H.S.'s, each at rate of £100.

West Riding of Yorkshire C.C.—Cons. Tuber. O., £750.

Westminster Hospital, Broad Sanctuary, S.W.—Hon. Clin. Asst. to Antenatal Out-patients' Dept.

Willesden General Hospital, Harlesden-road, N.W.—Hon. Ophth. Surgeon. Hon. Clin. Assts. to Out-patients' Dept. Also Cas. O., at rate of £100.

Winchester, Royal Hampshire County Hospital.—Res. Surg. O., at rate of £200. Also H.P. and H.S., each at rate of £125.

Windsor, King Edward VII Hospital.—Three H.S.'s, each £100.

Woolwich and District War Memorial Hospital, Shooters Hill, S.E.—H.S., at rate of £100.

Worksop, Victoria Hospital.—Sen. and Jun. Resident, at rate of £150 and £120 respectively.

York County Hospital.—Second H.S. and Res. Anæsthetist, £150.

The Chief Inspector of Factories announces a vacancy for a Certifying Factory Surgeon at Grassington, Yorks (W.R.).

Births, Marriages, and Deaths

BIRTHS

BARNETSON.—On Nov. 20th, at Lebong, India, the wife of Capt. J. C. Barnetson, R.A.M.C., of a son.

WAREHAM.—On Nov. 28th, at Ide Hill, Sevenoaks, to Alison Margaret *(née Collie), wife of Sidney J. Wareham, F.R.C.S.*—a daughter.

MARRIAGES

CAMERON—MORRIS.—On Nov. 28th, at St. Columba's Church of Scotland, London, Archibald F. Cameron, M.D., to Charlotte A. Morris, R.R.C.

SIMCOX—TASKER SMITH.—On Nov. 28th, at the Church of St. Bartholomew-the-Less, London, Dr. Ronald Simcox to Olwyn Tasker Smith.

DEATHS

CHAFF.—On Nov. 26th, in Salford, Thomas Waycott Chaff, M.R.C.S. Eng., of Higher Broughton, Manchester.

EAGER.—On Nov. 29th, suddenly, at North Moreton, Berkshire, Gurth Eager, M.R.C.S. Eng., formerly of Hertford.

JONES.—On Nov. 26th, at Alton, Hants, George Mellersh Jones, M.R.C.S. Eng., aged 80.

KETTLE.—On Dec. 1st, at Lansdowne-road, W., Edgar Hartley Kettle, M.D., F.R.C.P., F.R.S., professor of pathology at the British Postgraduate Medical School, University of London, and consulting pathologist to St. Bartholomew's Hospital.

KITCHIN.—On Nov. 25th, at Bradford, James Tyson Kitchin, M.D. Edin., D.P.H.

LANGLEY.—On Nov. 18th, at Netley Abbey, Alfred Fardon Langley, M.D. McGill.

LOVERIDGE.—On Nov. 23rd, at Guildford, William George Loveridge, L.R.C.P. Edin., late of Barton-on-Humber, Lincs.

MACLAUGHLIN.—*On Nov. 24th, at Strangford, Co.* Down, Frederick Peard MacLaughlin, M.B. Dub., in his 86th year.

MITCHELL.—On Nov. 25th, at 70, High-street, Old Aberdeen, Dr. Alexander Mitchell, aged 78.

RANSFORD.—On Nov. 22nd, at Weymouth, John Ernest Ransford, M.R.C.S. Eng., aged 67.

ROBINSON.—On Nov. 19th, at Woodstock, Capetown, Leland Robinson, M.B. Dub., formerly of Moate, Ireland.

SEXTON.—On Nov. 27th, at King's Lynn, Henry William Sexton, M.R.C.S. Eng., of King's Lynn.

SHEPHEARD.—On Nov. 27th, at Brook Green, W., Henry Shepheard, M.R.C.S. Eng.

VEREKER.—On Nov. 19th, at Curry Rivel, Richard Henry Vereker, L.R.C.P. & S.I.

WEST.—On Dec. 1st, in London, John Thomson West, M.B., C.M. Aberd., late chief surgeon of the Royal Samaritan Hospital, Glasgow.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

NOTES, COMMENTS, AND ABSTRACTS

HOSPITAL SAVING ASSOCIATION

AT the annual meeting at Kingsway Hall on Dec. 1st Mr. Herbert Morrison, leader of the London County Council, paid a great tribute to the work of the Hospital Saving Association. He spoke with deep appreciation of the contribution of the voluntary spirit in the national life and in particular of the desirability of its continuance in the voluntary hospitals. No longer, he said, was there any acute controversy upon the respective merits of hospital control by voluntary authorities and the municipality. Each was anxious to appreciate the merits of the other and the Hospital Saving Association was associated with the work of both. During the year under review the Association had paid the sum of £110,687 to Council hospitals. Sir Alan Anderson, the chairman of the Association, presented the annual report with his usual lucidity. Again it showed a record of sustained and continued progress, although the work of the past year had consisted mainly in removing weaknesses and consolidating the position. The number of contributors had increased by 126,663 and the income by £78,692, so that the latter had reached the remarkable figure of £923,121. Upon the advice of the committee of hospital representatives the council had made an important change in the method of distributing this income. They had removed the anomaly by which a higher percentage of the cost of out-patients than of in-patients was paid to the hospitals. This accorded with the primary intention of the Association to relieve the workman of anxiety about making a contribution to the hospital at a time when his resources were strained through being unable to work. The effect in the last accounts was to transfer £29,000 from one item to the other. Mr. Walter Elliot, who in his new position as Secretary of State for Scotland was responsible for the department of health, invited the group secretaries of the Association to consider the great improvements which had been made in the standard of health as shown in the recently published results of the medical examination of recruits for the Post Office. Recalling his own experience as a house surgeon, he remembered the distress with which he registered on a waiting-list the name of a patient requiring attention. Mr. Girling Ball, the dean of the medical college of St. Bartholomew's Hospital, recorded in a lighter vein some of the daily incidents of hospital life which were keenly appreciated by the audience. The meeting was marked by its usual enthusiasm, and even Mr. Morrison, with his wide experience of public meetings, expressed his surprise to see the hall packed with voluntary workers.

NEW PREPARATIONS

PRONTOSIL ALBUM.—Under this name Bayer Products Ltd. (Africa House, Kingsway, London, W.C.2) have produced a colourless tablet consisting of *p*-aminophenylsulphonamide, which is intended for oral use either alone or in conjunction with their injectable preparation, Prontosil Soluble. It has been employed against various streptococcal infections, including puerperal sepsis, erysipelas, tonsillitis, and streptococcal otitis media, and the indications for its administration are the same as those of the original preparations (Prontosil Soluble and Prontosil "Red" Tablets). The standard dosage is 1–2 tablets (each of 0·3 g.) three times daily. The three Prontosil preparations now available are: Prontosil Soluble (in ampoules of 5 or 10 c.cm. of the 2·5 per cent. solution, for injection); Prontosil "Red" Tablets in tubes of 20 tablets (each containing 0·3 g.): and Prontosil Album Tablets (the sulphonamide preparation) in a similar packing.

"TABLOID" BRAND *p*-AMINOBENZENESULPHONAMIDE.—The following statement about this substance is made by the manufacturers, Messrs. Burroughs Wellcome and Co. (Snow Hill Buildings, E.C.1). "Laboratory experiments show that *p*-aminobenzenesulphonamide is effective in protecting animals against certain lethal doses of virulent cultures of hæmolytic streptococci and some other organisms. Clinical experience in human medicine is still, however, in the experimental stage. Before deciding to use the product in the treatment of severe streptococcal infections, such as puerperal septicæmia, erysipelas, &c., it is suggested that patients shall be submitted to full bacteriological examinations to establish clearly the presence of hæmolytic streptococci in the lesion or in the blood stream. Six to ten "Tabloid" products, each containing 0·5 g. of *p*-aminobenzenesulphonamide, should then be administered orally per day after meals and continued for six days after the temperature is normal. Tests should then be made to ascertain whether the streptococci do or do not disappear from the blood stream. Clinicians are invited to send confidential reports for consideration with others, so that the widest information may be available to the profession. The only troublesome symptom yet reported is gastric disturbance following large dosage. Should such occur, the dose might be reduced temporarily." The 0·5 g. Tabloids are issued in bottles of 25 and 100.

p-AMINOBENZENESULPHONAMIDE.—Messrs. Evans Sons Lescher and Webb Ltd. inform us that they have small supplies of this substance available for trial in proved cases of hæmolytic streptococcal infection and that they will issue these free of charge to practitioners on the understanding that it will be used only in cases in which a hæmolytic streptococcus has been isolated and that full particulars will be supplied to the medical director, Evans' Biological Institute, Runcorn, Cheshire.

PROSEPTASINE, prepared by Pharmaceutical Specialities (May and Baker) Ltd., Dagenham, is *p*-benzylaminobenzenesulphonamide. The makers claim that it has a powerful antistreptococcal action and is "at least as active, and far less toxic, than any other sulphonamide yet produced. It is not a dyestuff and does not cause side-effects." They recommend its use in streptococcal infections of all types, and also prophylactically where there is reason to fear the onset of septic complications. The preparation is supplied in tablets for oral administration, and the adult dose is two tablets three times a day after meals for three or four days, and thereafter two tablets taken twice a day for four or five days. It is put up in bottles containing 25 tablets of 0·5 g.

COLSULANYDE.—The Crookes Laboratories (Park Royal, N.W.10) apply this name to their preparation of sulphanilamide which they recommend for the treatment of streptococcal infections of the blood stream. Extensive clinical experience, they say, has shown that such infections respond rapidly when the drug is given in doses of 3 to 5 grammes per day, preferably distributed so as to maintain more or less continuous absorption. "So far as is known at present," they add, "there are no contra-indications," and "in general it may be stated that for so powerful a therapeutic agent, this compound is one of the least toxic encountered in the history of chemotherapeutics." Especially good results have been noted in erysipelas.

NOVASAPA, described as a one-minute steriliser for surgical and dental instruments, is recommended on the grounds that it acts in the cold, will not rust or corrode, removes rusts and stains, does not blunt or spoil temper, is harmless to the tissues, and is compatible with local anæsthetic solutions. The manufacturers (the Pharmaceutical Manufacturing Company, Ltd., 39, Aldersgate-street, E.C.1) state that it "provides, in a glycerin base, the advantages of the trichloriodo antiseptic with the extreme germicidal properties of vuzinotoxin hydrochloride which forms the essential compound of the Novutox patented cold sterilising process." The solution is used without dilution, and instruments should be wiped clean of pus or blood before being treated. If this is done, it is said, Novasapa will kill the remaining micro-organisms within a minute in the cold. Instruments possibly contaminated by spore-bearing bacteria should be boiled in Novasapa for two or three minutes: at boiling-point it is stated to kill spores of tetanus and anthrax in one minute.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, Dec. 8th.

Therapeutics and Pharmacology, and Medicine. 5 P.M., Prof. A. St. G. Huggett, Prof. A. E. Naish, and Dr. Maurice Davidson: Therapeutic Methods of Arresting Hæmorrhage.

Psychiatry. 8.30 P.M., Prof. F. L. Golla and Dr. J. E. Nicole: A Follow-up Study of General Paralysis.

FRIDAY.

Clinical. 5.30 P.M. (Cases at 4.30 P.M.) Mr. A. E. Mortimer Woolf: 1. F [illegible] of Hip, Relieved of Pain by an [illegible] raft.

Ophthalmology. 5 P.M. [illegible] Royal Eye Hospital, St. Geor [illegible]

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, Manson House, 26, Portland-place, W.

THURSDAY, Dec. 10th.—8.15 P.M., Sir Robert Archibald: Epidemiology of Kala-azar in the Sudan.

HARVEIAN SOCIETY OF LONDON.

FRIDAY, Dec. 11th.—8.30 P.M. (Manson House, 26, Portland-place, W.), Dr. W. S. Copeman and Dr. Reginald Lightwood: Treatment of Rheumatic Diseases in Children.

MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY.

THURSDAY, Dec. 10th.—8.30 P.M. (11, Chandos-street, W.). Prof. Millais Culpin: Personality and Neurosis.

PADDINGTON MEDICAL SOCIETY.

TUESDAY, Dec. 8th.—9 P.M. (Great Western Royal Hotel, W.), Mr. H. N. Linstead: The Poisons Act and Dangerous Drugs Act: A Survey of the Regulations.

SOUTH-WEST LONDON MEDICAL SOCIETY.

WEDNESDAY, Dec. 9th.—9 P.M. (Bolingbroke Hospital, Wandsworth Common), Dr. Noel Harris: Suggestion and Hypnosis.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.

FRIDAY, Dec. 11th.—8.45 P.M. (Miller General Hospital), Sir Henry Gauvain: Conservative Treatment of Surgical Tuberculosis. (Purvis oration.)

BIOCHEMICAL SOCIETY.

FRIDAY, Dec. 11th.—3 P.M. (St. Bartholomew's Hospital, E.C.). 1. L. F. Hewitt: Separation of Serum Albumin into Two Fractions. 2. N. G. Heatley, C. H. Waddington, J. Needham, and P. E. Lindahl: New Experiments on Glycogen and the Amphibian Primary Evocator. 3. W. G. Dangerfield, W. E. Gaunt, and A. Wormall: The Colorimetric Determination of Bayer 205 in Body Fluids. 4. W. G. Dangerfield, W. E. Gaunt, and A. Wormall: The Elimination of Injected Bayer 205 from the Animal Body. 5. L. P. Kendal and L. H. Stickland: The Coenzymes of Glycolysis in Muscle Extracts. 6. H. Pritchard, H. Wilkinson, J. R. Edisbury, and R. A. Morton: A Discrepancy between Biological Assays and other Methods of Determining Vitamin A, Part II. 7. R. K. Callow: Isolation of the Male Hormone Present in the Urine of a Patient with an Adrenal Tumour. 8. H. Burrows, J. W. Cook, and F. L. Warren: A Substance Isolated from the Urine of a Man with an Adrenal Tumour. 9. A. S. Parkes: Relative Effectiveness of Various Esters of Œstrone, Œstriol, and Œstradiol. 10. H. A. Shapiro (introduced by A. S. Parkes): Induction of Ovulation by Testosterone and Certain Related Compounds.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS, Lincoln's Inn-fields, W.C.

THURSDAY, Dec. 10th.—5 P.M., Dr. George W. Corner: Salernitian Surgery in the Twelfth Century. (Thomas Vicary lecture.)

UNIVERSITY OF LONDON.

MONDAY, Dec. 7th, TUESDAY, and WEDNESDAY.—5.30 P.M. (Guy's Hospital, S.E.), Dr. George W. Corner: Ovarian Hormones.

CHADWICK LECTURE.

WEDNESDAY, Dec. 9th.—8.15 P.M. (Manson House, 26, Portland-place, W.), Sir Weldon Dalrymple-Champneys: Modern Views on Infection and Disinfection.

ROYAL INSTITUTION, 21, Albemarle-street, W.

TUESDAY, Dec. 8th.—5.15 P.M., Prof. E. Mellanby, F.R.S.: Chemical Messengers of the Body.

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane-road, W.

MONDAY, Dec. 7th.—2.30 P.M., Dr. R. D. Lawrence: Diabetes and Diseases of Pancreas.

TUESDAY.—2 P.M., Dr. Miles: Pathological Demonstration.

WEDNESDAY.—Noon, clinical and pathological conference (medical). 2.30 P.M., clinical and pathological conference (surgical). 4.30 P.M., Prof. S. P. Bedson, F.R.S.: Virus Diseases.

THURSDAY.—2.30 P.M., Dr. Duncan White: Radiological Demonstration. 3.30 P.M., Prof. J. M. Munro Kerr: Disproportion and Difficult Labour.

FRIDAY.—2 P.M., operative obstetrics. 2.30 P.M., Prof. Seymour Barling: Acute Surgical Infections other than Bone. 3 P.M., department of gynæcology, pathological demonstration.

Daily, 10 A.M. to 4 P.M., medical clinics, surgical clinics, or operations, obstetrical and gynæcological clinics or operations.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.

MONDAY, Dec. 7th.—10 A.M., skin clinic. 11 A.M., surgical wards. 2 P.M., operations, surgical and gynæcological wards, medical, surgical, and gynæcological clinics.

TUESDAY.—10 A.M., medical wards. 11 A.M., surgical wards. 2 P.M., operations, medical, surgical, and throat clinics.

WEDNESDAY.—10 A.M., children's ward and clinic. 11 A.M., medical wards. 2 P.M., gynæcological operations, medical, surgical, and eye clinics.

THURSDAY.—10 A.M., neurological and gynæcological clinics. Noon, fracture clinic. 2 P.M., operations, medical, surgical, genito-urinary, and eye clinics. 4.15 P.M., venereal diseases.

FRIDAY.—10 A.M., medical wards, skin clinic. Noon, lecture on treatment. 2 P.M., operations, medical, surgical, and throat clinics.

SATURDAY.—10 A.M., children's and surgical clinics. 11 A.M., medical wards.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Dec. 7th, to SATURDAY, Dec. 12th.—LONDON LOCK HOSPITAL, 91, Dean-street, W., afternoon course in venereal diseases (open to non-members).—BROMPTON HOSPITAL, S.W., all-day course in thoracic surgery.—HOSPITAL FOR DISEASES OF THE SKIN, Blackfriars-ro [illegible] —NATIONAL [illegible] road, N.W., [illegible] pathological M.R.C.P. course.; Wed., [illegible] P. M. F. Bishop: Ovary. Fri., 8.30 P.M., Dr. A. W. Spence: Testis and Thym [illegible] S.W., M.R.C.P. course in ch [illegible] 5 P.M.).—CITY OF LONDON [illegible] E., Wed. and Fri., 6 P.M., M.R.C.P. course in heart [illegible] D HOSPITAL FOR NERVOUS [illegible] W., afternoon M.R.C.P. [illegible] courses are open only to members of the fellowship.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

WEDNESDAY, Dec. 9th.—2 P.M., Mr. Denis Browne: Treatment of Congenital Club-foot and other Deformities of the Limbs. 3 P.M., Dr. D. N. Nabarro: Incidence of Bovine and Human Tuberculosis in Infancy.

Out-patient clinics daily at 10 A.M. and ward visits at 2 P.M.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL, N.W.

WEDNESDAY, Dec. 9th.—4 P.M., Dr. Norman Sprott: The X Rays and the Laboratory.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn road, W.C.

FRIDAY, Dec. 11th.—4 P.M., Mr. C. Gill-Carey: Rhinological Aspects of Asthma.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION.

WEDNESDAY, Dec. 9th.—4 P.M. (St. James' Hospital, Ouseley-road, S.W.), Dr. C. E. Lakin: Demonstration of Cases.

ST. JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE, 42, Ranelagh-road, S.W.

FRIDAY, Dec. 11th.—4.30 P.M., Dr. G. T. Calthrop: Radiological Aspects of the Rheumatic Diseases.

MANCHESTER ROYAL INFIRMARY.

TUESDAY, Dec. 8th.—4.15 P.M., Dr. J. F. Wilkinson: Diagnosis and Treatment of Some Common Anæmias.

FRIDAY.—Dr. A. Ramsbottom: Demonstration of Medical Cases.

MANCHESTER HOSPITAL FOR CONSUMPTION, Deansgate.

WEDNESDAY, Dec. 9th.—4.30 P.M., Mr. B. P. Robinson: Treatment of Nasal Obstruction in Children.

LEEDS GENERAL INFIRMARY.

TUESDAY, Dec. 8th.—3.30 P.M., Dr. Moll: Demonstration of Medical Cases.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.

WEDNESDAY, Dec. 9th.—4.15 P.M. (Ear, Nose, and Throat Hospital), Dr. W. C. Macartney: Diseases of the Pharynx.

ADDRESSES AND ORIGINAL ARTICLES

THE THYROTOXIC HEART

WITH SPECIAL REFERENCE TO "MASKED HYPERTHYROIDISM"[*]

BY JOHN HAY, M.D. Vict. and Liverp.,
F.R.C.P. Lond.

CONSULTING HON. PHYSICIAN TO THE ROYAL INFIRMARY, LIVERPOOL;
EMERITUS PROFESSOR OF MEDICINE, LIVERPOOL UNIVERSITY

I FEAR that our profession as a whole is not even now sufficiently alive to the presence in their clientele of many patients suffering from thyrotoxicosis, camouflaged as heart disease. It does not appreciate to the full the significance and gravity of this type of toxæmia, nor the necessity for more frequent and earlier surgical intervention.

In 1920 Dr. J. Strickland Goodall[3, 4] strongly advocated surgical treatment in thyrotoxicosis because he was convinced that it offered the best chance of permanent success—a view which becomes more and more recognised as the rational method of attack. His vigorous advocacy of subtotal thyroidectomy did much to popularise this method of treatment at a time when it was viewed with suspicion and fear by most British physicians and surgeons.[5] About this period and onwards he worked in collaboration with his friend and colleague, Mr. Lambert Rogers, and several papers were published under their joint names.

It is pleasant to record that in 1924 W. Dameshek,[10] writing in the *Boston Medical and Surgical Journal* on The Heart in Hyperthyroidism, says:

> "Even by recent writers, the paramount importance of the cardiac condition in the disease, aside merely from its theoretical interest, has not been at all emphasised. Of all the present writers Goodall alone seems to be the one who has not missed the point (or what I believe to be the point) in regard to the importance of these disturbances."

Historical Survey

Up to 1920 the literature in regard to Graves's disease and toxic adenoma was relatively scanty, and emanated mainly from America, Germany, and France. The symposium on thyroid disease in Berlin in 1906 stirred up interest in this subject with a corresponding increase in the communications to the medical press, and from 1920 on there has been a veritable spate of papers dealing with the problems inherent in thyrotoxicosis and its associated cardiovascular phenomena.

Since 1834 Graves's disease has been recognised as a well-defined clinical entity characterised by exophthalmos, enlarged thyroid with tachycardia and tremor, and its diagnosis presents no difficulty. Later, in 1885, Charcot described the "formes frustes" in which the clinical manifestations were incomplete and associated with cardiac involvement. Towards the end of the last century the close relationship between toxic adenoma and the hyperplastic type of thyroid was beginning to be recognised, and in 1899 Kraus[11] wrote concerning the thyroid heart and its relationship to toxic goitre. From the first the involvement of the cardiovascular system was noted, but it was not until the early years of this century that the inward significance and importance of the effects of thyrotoxicosis on the heart began to be appreciated.

This first phase lasted until the earlier part of this century when a new era in the investigation of thyrotoxicosis began with the more general use in clinical medicine of the electrocardiograph and the sphygmomanometer. The auscultatory method of recording both systolic and diastolic pressure dates from about 1905, and it was in 1909 that the specific nature of auricular fibrillation was demonstrated by Sir Thomas Lewis. About the same time the measurement of the basal metabolic rate began to be utilised. The study of thyrotoxicosis from then became more exact and from 1920 onwards the results are manifest in the increased output of papers.

Even at this period surgery was playing a well-defined part in treatment. Kocher, the Mayos, Halsted, Berry, Dunhill, and Joll had between them reported many hundreds of cases. But the surgeons of those days were working under very great disadvantages in regard to the preparation of patients for operation and post-operative management, and the operative risk was high.

This second phase was characterised by an intensive investigation along the lines above mentioned, and the recognition that there were two clearly defined clinical types of trouble. It was realised that underlying both there was the same element of thyrotoxicosis: (1) the primary, hyperplastic type—diffuse toxic goitre—the more acute, which occurred at an earlier period in life, age 15–35; and (2) the secondary, the toxic adenoma—nodular toxic goitre—the toxic process persisting for many years with exacerbations and intervening periods of relative improvement, continuing into the later decades of life—age 30–70. It was generally accepted, for all practical purposes, that thyrotoxicosis was the essential feature in each, and that the difference lay in the variations in intensity, in the duration of the thyrotoxicosis, and in the physique and psyche of the patient.

Characteristic Features

Now it is obvious that when we are dealing with a toxæmia which persists from the fourth to the seventh decade we have, complicating the picture, those changes—cardiovascular in origin—which are associated with this age-period, with its liability to hyperpiesis and coronary disease: and it is this factor more than any other which complicates the clinical manifestations of nodular toxic goitre.

Based on a critical analysis of the large mass of clinical material, certain features are now recognised as characteristic of thyrotoxicosis. There is a definite increase in the basal metabolism; the systolic blood pressure tends to rise and as the rise in the diastolic pressure is either negligible or slight, the result is an increase in the pulse pressure; and, lastly, in addition to tachycardia there is a remarkable liability to cardiac arrhythmias, more particularly that of auricular fibrillation, either paroxysmal or persistent. In fact, Jones[12] goes so far as to state that in his experience auricular fibrillation, paroxysmal or persistent, is more often seen in thyrotoxicosis than in any other form of heart disease.

It is interesting to note the manner in which our point of view has altered in regard to patients suffering from thyrotoxicosis. Time was, when faced with a patient suffering from toxic goitre, one was interested in the tachycardia and the cardiac arrhythmia as a kind of side issue, an academic interest tempered by the knowledge that most probably both would prove refractory to treatment. Now it is an entirely different story. The presence of tachycardia and fibrillation are valued as the key to the solution of a puzzling syndrome and with the unmasking of the thyrotoxicosis pessimism is replaced by hope. For, once having suspected or recognised the possibility of thyrotoxicosis, a careful scrutiny of the patient and a more detailed cross-examination reveal just those deviations from the normal which are characteristic and of diagnostic value.

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[*] The first Strickland Goodall memorial lecture, delivered on Oct. 14th at the Society of Apothecaries of London. Prof. Hay introduced the lecture with a tribute to the professional life and personal character of the late Dr. J. Strickland Goodall, and described the important part played by him in the advancement of cardiology.

As an example of this, I saw the other day a patient of 72 on account of the condition of his heart. He was a thin, active man who consulted his doctor three weeks earlier complaining of not feeling up to the mark and of being a little short of breath. His doctor found that he was suffering from an attack of auricular fibrillation; the fibrillation lasted for three days but, although the rhythm returned to normal, the ventricular rate remained at about 100 per minute and the patient had still a definite tendency to shortness of breath on effort. He had also suffered recently from a little transient diarrhœa. On examination there was nothing abnormal to be made out in the heart, no valvular disease, no apparent enlargement; the radial pulse had a collapsing quality, the blood pressure was 150/60 mm. Hg, skin unduly warm, flushed, and moist; there was a fine tremor of the hands, and on cross-examination both the patient and his wife admitted that for the last month they had noticed a staring quality about his eyes. There was no evidence whatever of any abnormality about the thyroid gland, and there was no exophthalmos.

Here, I think there can be no doubt that we were dealing with a condition of thyrotoxicosis in a patient who presented himself on account of cardiac disability. It was the occurrence of paroxysmal fibrillation which aroused suspicion, coupled with the persistent tachycardia and a raised pulse pressure. Careful examination and cross-examination proved the correctness of the surmise.

Classification

The varying manifestations of thyrotoxicosis permit of certain groupings of the clinical material which may be presented as follows:—

Diffuse toxic goitre.—Graves's disease, characterised by enlargement of the thyroid, undoubted exophthalmos, tachycardia, tremor, loss of weight, a tendency to gastro-intestinal crises, and a high basal metabolism. In this group the onset is usually sudden and occurs from the age of 15 to 25. Females are much more frequently affected than males. The diagnosis is obvious and difficulty only arises when the thyrotoxicosis is slight and the clinical picture incomplete.

Nodular toxic goitre.—Toxic adenoma, described by Plummer in 1912,[13] characterised by chronicity with irregular enlargement of the thyroid, not always demonstrable, tremor, tachycardia, and loss of weight. Exophthalmos is much less common and usually slight. Here again females predominate. The onset is gradual and insidious and there is a long history of goitre. The patients in this group are found in the middle decades of life, although they have sometimes been goitre-bearers for many years, and they show a well-marked tendency to develop cardiovascular abnormalities such as hyperpiesis and auricular fibrillation with resultant congestive failure.

It is in this group that errors in diagnosis are most likely to occur: firstly, because the thyroid may be so slightly altered as to escape notice; and secondly, because the long-continued thyrotoxicosis, although not of a high grade, is prone to produce myocardial and vascular changes, and the clinical manifestations of cardiovascular disease dominate the picture to such an extent that the essential lesion, the causal toxæmia, is overlooked. The tragedy is that failure to recognise the underlying toxicosis may cost the patient her life.

It is in patients suffering from nodular toxic goitre that masked hyperthyroidism is most likely to occur. The chronicity of the low-grade toxæmia and the fact that it persists into and beyond middle age, the age for degenerative changes in the cardiovascular system, offer just the opportunity for the evolution of a baffling combination of symptoms.

Masked hyperthyroidism is a term which signifies that the usual signs and symptoms of hyperthyroidism are obscured by the more obvious indications of some other clinical entity. In such patients the symptoms of hyperthyroidism retire into the background and the liability to error is much greater when exophthalmos and goitre, two of the classical signs of hyperthyroidism, are absent.

The Masked Form

If we are to recognise the presence of a low-grade thyrotoxicosis there are certain indications to which we must be alive. First and foremost come deviations from the normal in the heart. Auricular fibrillation, either paroxysmal or persistent, especially in a patient under fifty should arouse suspicion, similarly auricular flutter—though this is more rare. In fact, Wishart[14] states that auricular fibrillation or flutter in patients with a normal basal metabolic rate, but who subsequently develop Graves's disease, may be the earliest detectable sign of thyrotoxicosis. Then there is usually a persistent moderate tachycardia with an increase of pulse pressure and a pulse which is "collapsing." Occasionally one finds a "suddenness" of the apex-beat and a snappiness of the mitral first sound which are suggestive; and Parkinson and Cookson[15] have shown that there is a characteristic straightening of the left border of the cardiac shadow in the radiogram. Further indications are palpitation, either of brief duration or constant, and extrasystoles, more significant if associated with tachycardia. The heightened metabolism will be suggested by loss of weight for which there is no adequate explanation. This may occur in spite of a good appetite which is amply satisfied, and it persists in spite of rest in bed.

The "eiderdown test," an early sign of increased metabolic rate, is sometimes obtained by tactful inquiries as to whether connubial bliss has been disturbed by differences of opinion in regard to the eiderdown. The patient, distressed by the heat of the extra covering and, regardless of the comfort and wishes of her partner, throws it over to his side of the bed: the result is a mild altercation. Whether this is in truth the acid test, it is at any rate of value, and it is amusing to watch the embarrassment on the faces of the patient and her husband when one first puts the question: "Can you tell me when you first began to quarrel about the eiderdown?" Other features are a warm moist skin, sometimes flushed and with a tendency towards a salmon hue.

Though there may be no exophthalmos there is often a slightly staring quality, or a peculiar brightness which is most suggestive. Such patients are usually restless, eager, alert, and difficult, with a leaning towards emotional instability. There is a temperamental change characterised by irritability and there are frequent periods of depression. A fine tremor is characteristic and one may discover a transient glycosuria.

Although circulatory disorders are the commonest masking factors, other conditions are sometimes present which by their prominence obscure the hyperthyroidism. Transient glycosuria has already been mentioned; on occasion this is so pronounced that the physician is satisfied with a diagnosis of diabetes, being partly misled by the steady loss of weight. There is no doubt, however, that in many patients in whom the glycosuria has been severe and controlled with difficulty by careful dieting and the administration of insulin, operation has been of the greatest service.[16]

A group of patients has been described by Freund and Cooksey[17] comprised of elderly individuals whose chief complaints were abdominal and gastro-intestinal. The outstanding symptoms were nausea, vomiting, loss of appetite, abdominal pain, diarrhœa for which there was no apparent reason, difficulty in swallowing with regurgitation of food, weakness, and loss of weight even to emaciation. There was a moderate increase in the heart rate. Nervousness, tremor, although present in varying degrees, were not initial complaints.

Clinical Types

It is well recognised that the clinical manifestations of hyperthyroidism are many and diverse; comparable to the protean symptomatology of *hypo*thyroidism, and a knowledge of their character is the first step towards their recognition, for as Charcot said "We see what we know." Patients suffering from masked thyrotoxicosis have been divided into groups by various writers and it simplifies matters to present them in this manner, although it hardly needs emphasising that there is no hard and fast dividing line.

The largest and most important group is undoubtedly that in which the thyrotoxicosis is masked as "heart disease."

In 1924 Levine and Sturgis[18] reported 5 patients in whom the cardiac symptoms had been present for two years, and the conditions had been regarded as solely due to cardiac disturbance. Later, in 1929, Levine and Walker[19] published further observations on the same type of patient, and included in this series of 11 patients 3 suffering from angina pectoris, a form of masked thyrotoxicosis to which I shall refer later. These patients prove resistant to treatment: their response to digitalis is unsatisfactory, and in spite of every care they tend to become progressively worse.

Careful reconsideration of the clinical findings unmask some of the features of mild thyrotoxicosis which I have enumerated. The presence of fibrillation is in itself suggestive and the correctness of the revised diagnosis is verified by the immediate and sometimes dramatic response to correction of the thyrotoxicosis. Further proof is obtained by histological examination of the mischievous thyroid. The patients described by Levine were of the alert, restless, nervous type, and showed a tendency to loss of weight.

There is another group similar to the above in which the restlessness, emotional instability, and irritable mentality are absent and are replaced by a peculiar condition of apathy.

This was described by Hamburger and Lev in 1930.[20] Their patients, although suffering from hyperthyroidism, presented an unusual apathetic listless appearance and what the authors describe as a "mask-like" face. There was an absence of tachycardia. The hyperthyroidism was indicated by a raised metabolic rate, general weakness, an undue liability to fatigue, redness or pigmentation of the skin, and an unexplained loss of weight. In only one patient a slightly staring expression or startled look was noted. In each instance the patient had been under treatment for heart disease and showed definite improvement when treated as a case of thyrotoxicosis.

Thyrotoxic hypertension.—More recently Parkinson and Hoyle[21] have drawn our attention to a clinical group of "masked hyperthyroidism" for which they have suggested the term "thyrotoxic hypertension," a term applicable to a group of patients, usually women of mature years. Moderate tachycardia is present, both the blood pressure and the pulse pressure are high, and there is a marked liability to auricular fibrillation. As they point out "masked hyperthyroidism" has already been related to myocardial disease. It is now seen to figure in relation to hypertension. They hold that the combination of hyperpiesis and long-standing thyrotoxicosis is more than accidental and that the recognition of this group is important. Its importance lies in the fact that failure to recognise the existence of the underlying chronic thyrotoxicosis leads to errors in diagnosis, stultifies the prognosis, and sidetracks essential treatment. Here, as in the other groups, the advent of auricular fibrillation is of diagnostic significance and, as Parkinson states, "Whenever auricular fibrillation occurs in a patient with hypertension, goitre is to be suspected as a likely cause." If this is borne in mind there will be fewer errors in diagnosis.

"*Thyrotoxic angina.*"—There is yet another group of masked hyperthyroidism—namely, that in which angina is the dominant symptom.

In 1928 Lev and Hamburger[22] reported favourable results following thyroidectomy in 5 cases of angina. In their patients the thyrotoxicosis was not masked, but they served as a demonstration of the wisdom of removing the whip from an already damaged heart. The following year Levine and Walker[19] described the outcome of operation in patients with anginal symptoms in whom the thyrotoxicosis, though present, was obscured. Hamburger and Lev[23] in 1930 referred to this combination and published a similar case. Towers[24] in 1933 in his paper on "masked hyperthyroidism as a cause of heart disease" noted the presence of anginal pain in one-third of his 15 cases, and in the same year Rosenblum and Levine[25] published the results of subtotal thyroidectomy in 69 patients, 9 of whom were anginal, 7 being typical anginas and 2 suffering from coronary thrombosis.

This brief reference to some of the published results will suffice to demonstrate that thyrotoxicosis by its persistent demand can unmask a potential or latent angina. There is no rest night or day for the heart overdriven by an overactive thyroid.

Illustrative Case

In dealing with patients to be found in one or other of the groups such as we have been discussing, in whom the hyperthyroidism is masked by varied, dominant, and misleading symptoms, our first duty is to discover the thyrotoxicosis, for this is the nigger in the wood pile and he must be exorcised. When browsing through the voluminous literature dealing with thyrotoxicosis, I have been made increasingly aware of instances in my own experience where I have failed in the complete diagnosis, not having been sufficiently alive to the significance of one or other of the manifestations of low-grade thyrotoxicosis. This was brought home to me recently and I quote it as a sample of the incomplete diagnosis.

Four years ago I was asked to see a woman of 71. (Some months before I had attended her husband in a fatal attack of coronary thrombosis.) She was thin and active, and complained of attacks of palpitation and a feeling of weakness. Two months previously she had suffered from a short paroxysm of auricular fibrillation. Her urine contained sugar—poorly controlled by dieting.

On examination the cardiac rhythm was normal, the heart moderately enlarged, there was no valvular disease, and blood pressure was 180/80 mm. Hg, heart rate 85 to 90 per minute. The radial arteries showed moderated arterio-sclerosis.

I classified her as a hyperpietic glycosuric with added paroxysmal auricular fibrillation. She did fairly well under careful management. I saw her again in 1934. The paroxysms of auricular fibrillation were becoming more frequent though not distressing. Blood pressure 160/60 mm. Hg, heart rate 80, fundamental rhythm normal. Latterly the fibrillation has been increasingly troublesome, the attacks more prolonged, although the ventricular rate is not rapid when fibrillation is present.

Her condition on Oct. 13th, 1936, was as follows: Weight 8 st. 6 lb. (she had lost over half a stone during the year). Auricular fibrillation present with a ventricular rate of 80–90 per minute, only partially controlled with digitalis. Blood pressure for the stronger beats 170/80 mm. Hg, skin pale, no eye changes, no tremor. On carefully palpating the neck I was able to recognise very slight irregular enlargement of the thyroid, and then the patient volunteered the statement that when she lived in Staffordshire she was afflicted with a goitre but this had disappeared on coming to Liverpool 20 years ago.

On reviewing the clinical data, the *interpretation* with which I think you will agree is as follows. This patient many years ago was a symptomless goitre-bearer. Change of residence caused the goitre to disappear, though in all probability there was a persistent low-grade thyrotoxicosis. Her blood pressure rose and glycosuria developed. In 1932 her husband died from coronary thrombosis. This psychic trauma excited the grumbling thyroid and precipitated toxic fibrillation. We now find a characteristic grouping of symptoms in a spare woman, past middle age—hyperpiesis, glycosuria, paroxysmal fibrillation, and a high pulse pressure, with a slight increase in heart rate, nothing abnormal in the appearance, eyes normal, skin normal, no tremor, and a thyroid only recognised as abnormal with difficulty. It is not unreasonable to assume that a thyroidectomy 20 years ago would have mitigated, if it had not prevented, the disasters of the last four years.

Treatment

It is not my intention to discuss treatment at any length and I will content myself with a short statement. The majority of cases of masked hyperthyroidism are to be found in patients afflicted by nodular toxic goitre and it is to this group that my remarks apply.

Reviewing the life-history of such patients one recognises the serious effects ensuing from chronic low-grade thyrotoxicosis, for this is a disease which, if allowed to run its course, eventually proves disastrous. The effects of this toxæmia are varied but it is the cardiovascular system which bears the brunt. In any but the mildest cases operation is the only safe procedure. Danger lies not in operation but in delay. As Dunhill[16] reminds us, one of the most pressing needs is to detect quickly when a patient ceases to hold and first begins to "slip," for that is the time to operate. It is clearly culpable when dealing with a disease of this nature to persist in medicinal and general treatment after it is recognised that the patient is losing ground.

It is unfortunately only too true, however, that many patients suffering from masked hyperthyroidism do not come under observation until the heart is already damaged. In such, auricular fibrillation, congestive failure, hyperpiesis, and angina pectoris are *not* contra-indications but rather an urgent call for operation. Cardiac enlargement may be placed in the same category.[15]

Operation is undertaken to cure the congestive failure and to remove the liability to angina by excising the poison factory and thus arresting the downward progress of cardiovascular disease. And it is remarkable how well apparently hopeless cases of congestive failure stand up to operation. Thyroidectomy must not be expected to alter the character of the myocardium nor restore a normal calibre to a diseased coronary, but it can and does remove the persistent strain on the heart due to the heightened metabolism which is responsible for the cardiac failure. The operative risk in skilled hands is now small. Success depends not only on the special skill of the surgeon but also on close and sympathetic coöperation between the surgeon and the physician. As an example we have the brilliant results from the team-work of Fraser and Dunhill,[16] and for a careful and considered discussion of the conditions determining operation I would refer you to their lectures published in St. Bartholomew's Reports.

In the presence of a nodular goitre when all evidence of thyrotoxicosis is absent, doubts may arise as to the wisdom of operation. Thyroidectomy is then prophylactic in nature, its object being to prevent the development of heart disease, and it can be carried out with a minimum of risk. But if a goitre-bearer at any time manifests even slight symptoms of thyrotoxicosis operation should be seriously considered.

A "grumbling goitre" is as dangerous, if not more dangerous, than a grumbling appendix. The public has been educated to part with an appendix with equanimity tinged at times with a soupçon of pride. Is it too much to hope that some such change of attitude may take place in regard to thyrotoxicosis?

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BOLINGBROKE HOSPITAL, LONDON—On Dec. 2nd the Duchess of Gloucester opened the new extension to this hospital which was founded in 1880. The extension has cost £70,000, and provides accommodation for another 14 beds.

CLINICAL AND LABORATORY INVESTIGATION ON VOLUNTEERS INFECTED WITH PFEIFFER'S BACILLUS

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The observations were carried out on eighty volunteers varying from 17 to 42 years of age, who had no noticeable affections of the heart, the lungs, or other viscera, and in whom the mucosa of the air-passages was in a normal condition.

The total number of experiments was 21, the number of people involved in one experiment varying from three to twelve. With a view to obtaining more manifest reactions to inoculation with Pfeiffer's bacillus, we subjected some of the volunteers to the procedure two days in succession. Thus on the whole we administered 168 inhalations, out of which number 110 were given with a living culture of Pfeiffer's bacillus, 29 with a culture of the same microbe previously killed, 14 with the throat washings containing Pfeiffer's bacillus and obtained from patients suffering from influenza, and 15 with control materials (such as horse serum, *Bacillus pseudodiphtheriæ*, *Micrococcus catarrhalis*, and typhoid vaccine).

Technique of inoculation.—The face of the volunteer was covered with a mask used for ether-chloroform anæsthesia. The outlet pipe of a glass atomiser containing 10–12 c.cm. of a living or a dead culture of Pfeiffer's bacillus or other microbes was inserted into a small aperture in the centre of the mask. An electric air-pump supplying 50 litres of air per minute was used to pass a current of air through the atomiser where it absorbed the atomised solution which was then carried in the form of minute drops into a glass reservoir attached to the atomiser. The smallest particles of the solution escaped the reservoir in the form of nebulous dust, penetrating inside the mask, and were inhaled into the respiratory tract of the subject under experiment. The inhalation lasted for 15 minutes, during which period from 5 to 10 by 10^8 cells of the culture were found to have been introduced into the respiratory tract of the volunteer.

Characteristic features of Pfeiffer's bacillus used for infection.—The first experiments were carried out with a virulent culture of Pfeiffer's bacillus which had been previously passed 32 times through the abdominal cavity of white mice. A dose of 0·5 c.cm. of a 20-hour bouillon culture introduced intraperitoneally was found to kill the mice within 1 or 2 days. A dose of 0·1 c.cm. caused death in some of the inoculated mice.

Later our desire to produce greater responsive reactions led us to continue our work, using 4–5 cultures of Pfeiffer's bacillus freshly obtained from patients with influenza.

FATE OF PFEIFFER'S BACILLUS INTRODUCED INTO THE RESPIRATORY TRACT: ITS EFFECT ON PNEUMOCOCCI AND HÆMOLYTIC STREPTOCOCCI IN THE THROAT

To determine the duration and the stability of the fixation of Pfeiffer's bacillus on the mucosa of the respiratory tract of our volunteers, as well as the effect of infection on the content of hæmolytic streptococcus and of pneumococcus in the same region, all the volunteers were repeatedly examined both before and after the culture was inoculated and a quantitative check-up was made of three organisms: Pfeiffer's bacillus, the hæmolytic streptococcus, and the pneumococcus. The last dilution of the original material that still showed growth of Pfeiffer's bacillus and the streptococcus on plates or still caused mice to die of pneumococcus sepsis determined the quantity of causal organisms present on the mucosa of the respiratory tract.

The results of repeated bacteriological examinations, varying in number from 6 to 12 for each individual case and carried out on forty-two subjects, inoculated with the living culture of the microbe, have served to show that Pfeiffer's bacillus on being introduced into the respiratory tract always thrives there, being present in high concentrations in the mucosa of the nose and the throat within the first 5–10 days following inoculation.

The material collected by means of tampons not infrequently revealed the presence of hundreds of thousands and even millions of living Pfeiffer's bacilli several days after the inhalation. The period of their fixation did not as a rule exceed 10 days. By that time the quantitative indices were found to show a rapid fall, returning to the level observed in our volunteers previous to their inoculation.

As regards the behaviour of the hæmolytic streptococcus and of the pneumococcus in individuals infected with a living culture of Pfeiffer's bacillus, it was found that the pathological reactions and inflammatory phenomena developing on the mucosa of the respiratory passages had no noticeable effect on the content of these micro-organisms in this region. Thus, before inhalation the hæmolytic streptococcus was found to be present in forty-two people seven times; following inhalation (on the 2nd–4th day) it was found to occur nine times, the quantitative indices remaining on the level of the original figures.

Pneumococci of Type IV. were discovered in the same group of persons twenty-nine times previous to inhalation and thirty-two times subsequent to it, and could be isolated both before and after infection in dilutions of the corresponding washings which did not exceed 1 in 10 and 1 in 100.

These data point to the fact that the experimental infectious process that is caused by inoculating people with Pfeiffer's bacillus is not followed by an activation of the main causal organisms producing the secondary complications that usually accompany influenza. Therefore, the symptoms developed by persons who had been subjected to infection can reasonably be attributed to the toxic products of Pfeiffer's bacillus but not to the secondary processes of a streptococcal or pneumococcal nature.

CHANGES IN THE IMMUNOLOGICAL PROPERTIES OF THE BLOOD OF INFECTED VOLUNTEERS

Inoculation with Pfeiffer's bacillus by means of inhalation, particularly if it is repeated, always leads to a distinct rise in the concentration of specific agglutinins and complement-fixing substances in infected individuals. The agglutination test was found to be positive in 6–10 days after the first inhalation in most of the volunteers in dilutions of the serum of 1 in 40 to 1 in 80, being still more manifest in a number of cases (positive reactions with a serum in a 1 in 320 dilution).

The complement-fixation reaction proved to be even more sensitive than the agglutination test: all the volunteers who were subjected to infection yielded positive results as early as on the 5th–6th day after inoculation, the specific changes being very great in a number of the cases.

SYMPTOMS DEVELOPING AFTER INTRODUCTION OF PFEIFFER'S BACILLUS INTO THE RESPIRATORY TRACT

For the purpose of estimating the clinical symptoms, both the subjective complaints of the patients and the objective changes affecting the respiratory organs, the temperature reaction, the pulse, the viscera, and the blood (counting of leucocytes, blood formula, and erythrocyte sedimentation test) were very carefully registered.

All the 110 volunteers infected by means of inhalation of the living cultures of Pfeiffer's bacillus developed in 4–6 hours following inoculation clinical symptoms that indicated that the patient was in a condition of an infectious intoxication of a greater or lesser severity, lasting for 1 or 2 days. Clinically the experimental infection was mainly characterised by:

(1) Inflammatory œdema of the mucosa of the air-passages and hyperæmia of the nasal conchas, dryness of the nasal mucosa with a subsequent mucous discharge, slight cold in the head, conjunctivitis, hyperæmia of the pharyngeal mucosa, swelling and reddening of the tonsils, and in some cases swelling of submaxillary lymphatic glands. No regular sequence of changes affecting the upper respiratory tract was observed, and in the vast majority of the cases the reaction lasted but a short time (1–2 days, with a maximum of 4 or 5 days). Occasionally pathological symptoms were also observed to develop in the larynx, consisting mainly in hyperæmia of the vocal cords, and there was sometimes a tendency towards nasal hæmorrhage. No reaction on the part of the nasal cavities or the ear was ever noted.

In response to the introduction of dead cultures of Pfeiffer's bacillus the local symptoms, if any, were quite insignificant.

(2) The general phenomena that developed after the infection with a living culture varied considerably in intensity. In cases when the reaction was particularly strong the symptoms were as follows: 4–6 hours after the inhalation the patient had a rigor, the temperature rose rapidly to 38–39°, and he suffered from a severe headache, weakness, cough, pain in the joints, and in some cases herpes labialis. Auscultation of the lungs revealed dry and occasionally moist râles not accompanied by any percussion changes. In cases with a very marked reaction there was an occasional dullness of heart tones and a systolic murmur at the apex.

It was characteristic of all these phenomena that they were extremely unstable and lasted but for a short time. In the large majority of the volunteers we observed the temperature was again normal in 24–36 hours following infection, showing but in a few cases subfebrile rises within the next few days. A cough and a cold in the head as well as complaints of weakness lasted a little longer.

The introduction of dead cultures of Pfeiffer's bacillus produced a reaction which only slightly resembled the infection resulting from the inhalation of its living culture.

In experiments in which inhalations of horse serum and of certain micro-organisms of either a toxic or a non-toxic nature were given (such as typhoid vaccine, living cultures of *M. catarrhalis* and of *B. pseudodiphtheriæ*) in concentrations of 10,000 million to 1 c.cm., the results observed were as follows: the introduction of horse serum (3 cases) and that of the *B. pseudodiphtheriæ* (3 cases) failed to produce any responsive reaction.

Inhalations of the typhoid vaccine (6 cases) were followed by an unstable temperature reaction—which was as high as 38° C. (100·4° F.) in one of the cases—lasting for about 12–18 hours, mild subjective phenomena (slight chill, weakness, and headache). No local phenomena on the mucosa of the respiratory passages were observed. Inhalations of a living culture of the *M. catarrhalis* produced in 2 cases out of 3 very slight general and local symptoms.

It should therefore be noted that the clinical reactions in response to the introduction of a living culture of Pfeiffer's bacillus were much greater than those produced by either the typhoid vaccine or the *M. catarrhalis*.

The changes in the blood picture caused by human experimental infection are of particular interest. It is well known that in epidemic influenza the picture of the blood shows very constant and typical deviations from normal: leucopenia, which is most manifest by the 2nd–5th day; lymphopenia, which first appears on the second day of the disease and gradually disappears by the 4th–5th day; neutropenia, which is most conspicuous on the 4th–5th day of the disease; eosinopenia, lasting throughout the feverish period; and, according to Korovin, monocytosis within the first few days of the disease.

We found that the picture shown by the blood in the experimental infection caused by Pfeiffer's bacillus was the reverse of that observed in epidemic influenza.

All the volunteers who were infected were found to show in the few hours immediately after the inhalation a marked leucocytosis. In the first group, which on the average constituted about 40 per cent. of all the infected volunteers and which showed particularly intense local and general phenomena with a rise of temperature up to 39·5–40·1° (103–104° F.), leucocytosis was as high as 12,000–15,000; in the second group, which made up about 35 per cent. of the total number and in whom the clinical symptoms were of medium severity, leucocytosis varied from 9000 to 12,000; and, lastly, in the third group, constituting about 25 per cent. of the total number, the clinical symptoms were very mild, the temperature did not rise above 37·4° (99·4° F.) and leucocytosis did not exceed 11,000.

There was also observed an increase in both the relative and the absolute quantity of neutrophils, which showed a definite shift to the left in the direction of younger cells, the neutrophil curve reproducing that of the leucocytes.

The absolute quantity of lymphocytes was above the normal level in every one of the cases. No eosinopenia was observed. The reaction of erythrocyte sedimentation, which is usually somewhat delayed in cases affected with epidemic influenza, was found to be greatly accelerated in our infected volunteers.

This very conspicuous discord between the blood picture observed in epidemic influenza on the one hand and the picture after the inhalation of a living culture of Pfeiffer's bacillus on the other can be regarded as a weighty proof against the two affections being identical.

Thus there is every reason to assume that the experimental affections resulting from the introduction of Pfeiffer's bacillus into men resemble genuine influenza only in some of their symptoms, such as the sudden onset of the disease with rigor and rise of temperature, the catarrhal phenomena affecting the upper respiratory passages, the appearance of herpes in many of the cases, and the presence of certain symptoms of influenzal intoxication (headache, pains in the joints, &c.). The short duration and the extreme instability of the febrile reaction and of all the other local and general symptoms, as well as the absence of any complications in all the forty-three volunteers who were infected with a living culture and the peculiar nature of the changes occurring in the blood, serve to prove that the symptom complex observed does not fit in with the typical clinical course run by epidemic influenza. Another of the main symptoms of epidemic influenza—i.e., its extreme infectivity—was not observed in these cases of artificial Pfeiffer's infection. The medical personnel who came into close contact with the infected volunteers did not contract the disease, and infectivity could not be demonstrated in special experiments in which particularly favourable conditions were created for contact infection.

SUMMARY

Our investigation shows that Pfeiffer's bacillus is capable of producing, under conditions of experimental infection, an infective process of intoxication with a number of manifestations that resemble certain symptoms of influenza. It provides evidence, however, that the illness produced by introducing virulent cultures of Pfeiffer's bacillus into a healthy person is not genuine epidemic influenza.

ON THE ÆTIOLOGY OF THE 1936 INFLUENZA EPIDEMIC IN LENINGRAD

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THE violent outbreak of epidemic influenza that spread throughout the Soviet Union in February and March, 1936, showed a very high morbidity in Leningrad, where there were approximately 500,000 cases.

Making use of the method worked out by Smith, Andrewes, and Laidlaw (1933), we studied the throat washings obtained from patients affected with influenza in this epidemic with a view to detecting the presence of a virus pathogenic for ferrets.

Two ferrets were given intranasally under ether anæsthesia within a period of two days—to increase the effect of the virus—1 c.cm. of unfiltered washings from 5–12 patients suffering from a fresh infection of influenza (on the first or second day of the disease). One of the ferrets developed typical morbid symptoms on the day after the second inoculation. When the disease had reached its maximum height we obtained a throat washing and some nasal mucus from the infected ferret and inoculated it intranasally into five young mice. This was done under ether anæsthesia. Mice were chosen for the experiment owing to the shortage of ferrets at our disposal at the time of the epidemic. Six days after the inoculation all the mice were killed. The lungs of two of the mice revealed small broncho-pneumonic foci, about 1–2 mm. in size, which a bacteriological examination proved to be sterile. The virulence of the virus was found to increase with great rapidity so that by the fifth passage all the mice which were given a 5 per cent. lung emulsion from the previous passage died on the 4th–7th day following inoculation, showing symptoms of severe pneumonia and complete hepatisation of the lung tissue. Bacteriological tests proved these lungs to be sterile in most cases.

This latter strain possessing a high degree of virulence was then used in a number of experiments with the object of comparing it with the British virus.

Expt. 1.—Groups of mice were subjected to inoculation with our strain in combination with: (*a*) various dilutions of a specific immune horse serum which had been sent us from London; (*b*) normal horse serum; (*c*) normal saline solution. All the mice of Series *a* survived, while the control mice of Series *b* and *c* died.

Expt. 2.—Sixteen mice were given two daily subcutaneous inoculations of the London virus (WS) for 20 days. Then eight of the mice were inoculated intranasally with the same virus and the other eight with our strain. Both the groups survived while the control groups of normal mice died. The WS virus was instilled in a dilution of 1 : 1000 (500–1000 lethal doses), our virus in a dilution of 1 : 100 (10–50 lethal doses).

Expt. 3.—The London immune serum in a dilution of 1 : 10 was mixed with a 10 per cent. emulsion of our strain. The mixture was stood in a thermostat for 2 hours and in an ice cellar for 20 hours, and then centrifuged. The serum obtained was heated at 55° C. for 30 minutes (to destroy our strain), combined with the WS virus in a 1 in 1000 dilution, and then injected into mice. All the mice died on the 4th or 5th day.

Thus the lung emulsion of a mouse that had died after an intranasal inoculation with our strain had fully adsorbed the specifically virulicidal antibodies of the London serum.

The above experiments served to show that the virus we had obtained in the influenza epidemic of 1936 was identical with that of Smith, Andrewes, and Laidlaw. Similar results have been obtained by C. H. Andrewes with our virus (personal information).

Our success in isolating the virus as early as after the first passage in ferrets may be accounted for:

(i) By the high virulence of the causal organism in the Leningrad epidemic and by our using a more intense method of inoculation—i.e., a double inoculation of ferrets under ether anæsthesia instead of a single intranasal instillation, as had been practised by the English investigators.

(ii) By our inoculating ferrets with a non-filtered washing containing a considerably larger quantity of the virus than that present in filtrates passed through candles.

(iii) By a further continuous passing of the virus through mice, which greatly increased its initial rather low virulence.

A further study of the isolated strain has served to show:

(1) A gradual increase of virulence as a result of passages through white mice. Titration of virulence after the fourteenth passage resulted in the death of mice if they were inoculated intranasally under general anæsthesia with the lung emulsion in a dilution of 1 in 10,000 and occasionally in one of 1 in 100,000. The corresponding data obtained in our laboratory for the WS virus (London) were:

Dos. certe let	1 in 100,000
Dos. non certe let	1 „ 1,000,000

and for the Francis virus (America):

"Porto Rico"	1 in 1000
"Philadelphia"	1 „ 100

(cf. Francis and Magill, 1935.)

Thus the Leningrad strain considerably exceeded in virulence the Francis strain (America) and was somewhat less virulent than that of the English investigators.

(2) Complete neutralisation of our virus by the sera obtained from influenza convalescents in the Leningrad epidemic.

(3) The development of a typical temperature reaction and symptoms of catarrh of the respiratory tract of a fresh ferret after intranasal inoculation with the Leningrad strain. In 10–15 days time such a ferret was found to be immune to the English virus (WS).

(4) The reproduction of the main clinical symptoms of influenza in persons infected through inhalations of a minutely atomised emulsion of our virus; these inhalations were administered on three consecutive

days and lasted 30 minutes each. Five volunteers who had not had influenza were infected by the inhalation method and showed a number of reactions characteristic of influenza (a rise of temperature up to 38·5° C. lasting for 2 or 3 days, symptoms of catarrh of the upper respiratory tract, a slight cold in the head, headaches mainly located in the region of the frontal sinuses, and distinct leucopenia and an increasing quantity of specifically virulicidal substances in the blood). The experiments, which are being carried out on a fairly large number of volunteers, will be discussed in greater detail in a special paper.

CONTENT OF VIRULICIDAL SUBSTANCES IN THE SERUM OF INFLUENZA PATIENTS ON DIFFERENT DAYS OF THE DISEASE

The rôle of the filtrable virus in the ætiology of the last epidemic outbreak in the U.S.S.R. has been indirectly confirmed by us through our studies of the changes in the specific virulicidal substances contained in the serum of patients who have suffered from either non-complicated influenza or one complicated with pneumonia.

The method of quantitative titration of virulicidal substances was as follows:—

0·2 c.cm. of sera in dilutions of 1 in 5, 1 in 25, 1 in 125, and 1 in 500 were mixed with equal quantities of a fresh emulsion of the WS virus in a dilution of 1 in 125. The final dilution of the serum was 1 in 10, 1 in 50, 1 in 250, and 1 in 1000, while the final dilution of the virus was 1 in 250—i.e., it contained about 1000 doses lethal to a mouse. Following a contact between the serum and the virus which lasted for about 20–30 minutes, each dilution of the mixture was inoculated intranasally, under ether anæsthesia, into three young mice. All the mice which died within 5–10 days following inoculation were examined, the intensity of the pulmonary infection was noted, and in case of complete or markedly manifest hepatisation of the lung tissue a bacteriological examination of the blood and the lungs was made. The dead mice either failed to show any micro-organisms in the blood or the lungs, or contained but a scant number.

The observations were first carried out on fourteen cases of non-complicated influenza. The serum was taken on the first or second day of the disease, and a second time after all symptoms had disappeared (on the 10th–12th day following the onset of the disease and in some cases on the 30th–40th day as well). The results of the investigation are shown in Fig. 1. The content of virulicidal substances in each serum is shown in the form of a column made up of 12 squares which are divided into four groups, according to the dilution of the serum. Each square corresponds to one mouse and is either black, which means that the mouse died, or white—i.e., the mouse survived.

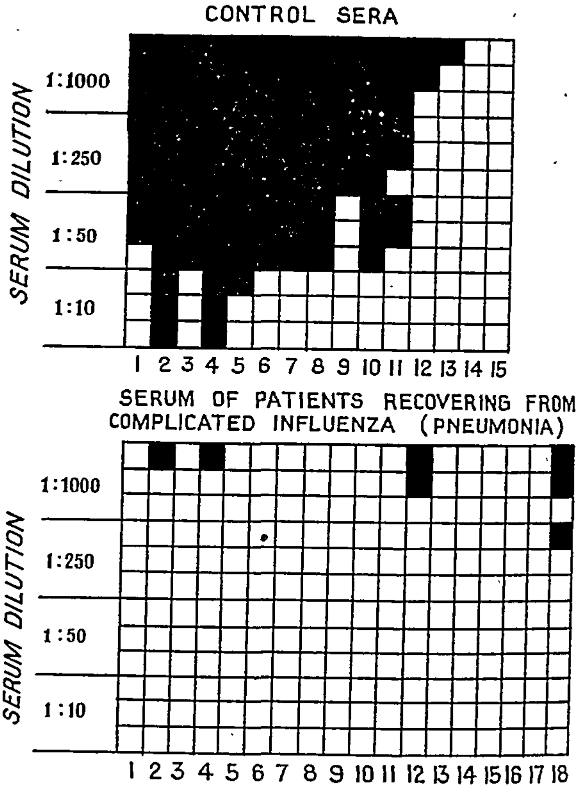

FIG. 2.—Concentration of virulicidal substances in the blood of 15 healthy persons and of 18 patients recovering from epidemic influenza with complications. As in Fig. 1 each black square indicates the death of a mouse, and a white square its survival, after injection of equal quantities of serum (variously diluted) and virus.

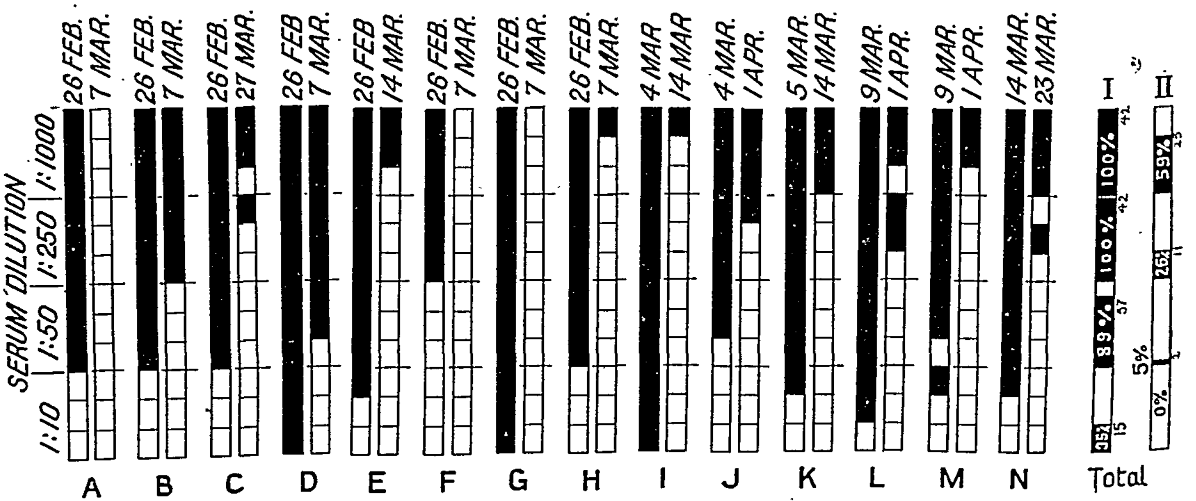

FIG. 1.—Experiments to determine the virulicidal properties of the blood in 14 cases of epidemic influenza (A–N). The
serum in each case was taken at the beginning of the illness and again after symptoms ition
as shown (1 in 10, 1 in 50, 1 in 250, and 1 in 1000) it was added to equal parts (about 1(and
injected into three mice. Each black rectangle represents the death of a mouse, and c ival.
Columns I. and II. show the mouse death-rates for the whole series, and the difference the
protective (virulicidal) power of the patients' serum at the end of their illness.

As may be seen from the data presented, the maximum dilution of serum which still neutralised the given dose of the virus at the beginning of the influenzal infection was not over 1 in 10. Dilutions of serum equal to 1 in 50 or more failed to produce the effect, with one exception. The sera obtained from convalescent patients were found to be considerably more active and neutralised without fail the given dose of the virus even in a dilution of 1 in 250, and in a few cases even in a dilution of 1 in 1000. Thus it was found that all the influenza patients whom we observed showed a regular rise in the concentration of virulicidal substances of 25 to 100 times during the period of convalescence.

The next experiment was carried out on the sera of eighteen patients who had recovered from influenza complicated with pneumonia. Fifteen sera obtained from healthy persons on Jan. 22nd, 1936 (20 days before the epidemic broke out in Leningrad), were used as controls. The method of titrating the virulicidal substances was the same as that used in the previous experiment. The results obtained are shown in Fig. 2.

The content of virulicidal substances in the serum of convalescents who had had influenzal pneumonia proved to be on the average still higher than in the non-complicated influenza cases. The vast majority of the sera obtained from pneumonia patients neutralised 1000 minimal lethal doses of virus even in dilutions of 1 in 1000. The composite serum obtained by pooling the eighteen sera was found to neutralise the given dose of the virus in a dilution of 1 in 2500—i.e., it corresponded in potency to the London hyperimmune horse serum.

As compared with the immune sera, the controls appeared to be strikingly poor in these immune elements. Of the fourteen tested, three proved to be inactive even in dilutions of 1 in 10, ten in dilutions of 1 in 50. It is of interest to note that four of the control sera were found to be rich in virulicidal antibodies and neutralised the given dose of the virus even in dilutions of 1 in 250 to 1 in 1000.

It is evident that the virulicidal substances discovered by us in high concentrations in the blood of convalescents should be regarded as specific products of the active immunising effect of the influenza virus.

SUMMARY

A filtrable virus which is pathogenic for ferrets and mice and is identical with the virus discovered by Smith, Andrewes, and Laidlaw has been isolated from the respiratory tracts of patients infected with influenza during the 1936 epidemic in Leningrad.

A regular and marked rise in the concentration of the specific virulicidal elements in the blood of influenza convalescents has been revealed: at the time the disease had reached its climax most of the sera neutralised 1000 lethal doses of the virus only in dilutions which were not over 1 in 10, while the serum of convalescent cases produced the same effect in dilutions of 1 in 250 to 1 in 1000.

An exceptionally high content of virulicidal substances has been observed in the serum of patients convalescent from broncho-pneumonia.

The data obtained confirm the rôle of the filtrable virus as the main and primary causal organism of epidemic influenza.

We wish to express our thanks to C. H. Andrewes, Wilson Smith, P. P. Laidlaw, and Richard Shope for kindly assisting us in many ways.

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THE EFFECT OF BENZEDRINE ON INTELLIGENCE SCORES

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Peoples and Guttmann[1] have reported that Benzedrine (β-phenylisopropylamine) has a stimulating effect on psychological processes, especially in emotionally depressed and retarded patients. It appeared important to us to find out whether the subjective increase in confidence and mental alertness after taking benzedrine was accompanied by a real improvement in general mental efficiency. With this object in view, we decided to ascertain whether benzedrine significantly altered the intelligence test scores of a group of persons previously tested without it, thus giving us an opportunity of investigating the effect of emotional changes on intellectual performance.

It is sometimes held that experimental investigations into the psychological effects of drugs are unsatisfactory owing to the difficulty of assessing the large number of variables present. But the use of intelligence tests on fairly large groups of subjects overcomes this difficulty to some extent. They are among the most exact of the modern psychometric methods and are now well standardised. In addition many of them are issued in "equivalent" forms, so that the same person should obtain the same score whichever form he uses. If large enough groups are employed statistical criteria may be applied in evaluating the results.

Emotional factors are one of the main sources of error in most psychometric observations, but in our experiments they are the subject of the investigation. For while it is extremely unlikely that any drug can have the effect of increasing innate intelligence, yet an individual may sometimes be temperamentally and emotionally unfitted to make as high a score as his abilities warrant. It was thought that the administration of this drug might make a person feel more confident, lose less time in accommodating himself to the task, quicken mental responses, and consequently register a higher score.

DETAILS OF INVESTIGATION

Patients at the Maudsley Hospital who were coöperative enough to undertake the tests and represented a wide variety of personality make-up were used as the material. Details of their mental characteristics were already known and could be correlated later with their reactions to the drug.

Cattell's "intelligence tests" were used. These are supplied in equivalent forms A and B, either of which may be substituted for the other, and are made up in scales of increasing difficulty. A shortened form of Scale 2 was used in these experiments, in which every alternative question was eliminated.

The general procedure was to present one of these forms to the patient on the first day and the equivalent form 24 hours later, after the administration of tablets. For two experimental groups these tablets were benzedrine, for a control group "inert" tablets were used of similar shape and taste. (These were substituted without the knowledge of the patients, since the use of benzedrine was known in the hospital and its effect appreciated by some of the patients.) Approximately half of all the patients were given Form A for the first test and Form B for the second, the remainder being given the forms in the reverse order. This was to eliminate the possibility that one form of the test was more difficult than its equivalent, with the result that an increase in score might be solely attributed to this factor. The control group, taking inert tablets, was used to safeguard against the possibility that an increase in score on retesting might be the result of practice, an increased familiarity with the test employed, or to the influence of suggestion in the administration of the drug.

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[1] Peoples, S. A., and Guttmann, E.: The Lancet, 1936, i., 1107.

Twenty milligrammes of benzedrine were given to each patient in the two experimental groups, and the tests were carried out on the first group 1½ hours and on the second 2½ hours after its administration. Peoples and Guttmann[1] found that the susceptibility to benzedrine, and the period between its administration and its maximum effect, varied in different individuals and also with the dose given. Many subjects also require a larger dose than 20 mg. to produce the maximum effect, but it was especially desired to avoid overdosage. Probably greater differences in scores would have occurred if it had been possible to make an individual assessment of the correct dosage in each case.

On completion of the experiments changes in the scores were statistically recorded. In addition, results were correlated with the mental symptoms of the patients, and the scores obtained by individual patients examined.

RESULTS

Alteration in average test scores.—It was found that, on retesting, the average score of the control group remained the same, but both groups given benzedrine showed an increase in score of over 8 per cent., representing a rise in the intelligence quotient of approximately 7 points. The results are shown in the following Table.

—	Number of patients.	Mean scores.		Standard error of means.	
		First test.	Retest.	First test.	Retest.
Control ..	19	50·7 pts.	50·9 pts.	2·5	2·9
Expt. 1 ..	26	45·1 „	49·5 „	2·9	2·4
„ 2 ..	22	45·0 „	48·5 „	2·3	2·1

Average score obtained by the general population, 50 pts.[*]
Maximum score obtainable in these tests, 80–81 pts.

It will be seen that the rise in the average score of experimental group 1 is confirmed by a similar rise in score of experimental group 2, and if the scores of the two experimental groups are added together the average increase in the 48 patients is 3·9 points, or 8·7 per cent. (standard error of difference 2·5). This represents statistical odds of seven to one against the increase being due to chance.

The Table shows that the control group was slightly more intelligent than either of the experimental groups. It might be argued that the increase in score of the experimental groups on retesting was due to its being easier to increase a score from a relatively low point than from a relatively high one. This argument is not likely to be valid in this particular case for the maximum score in each form of the test is 80–81, and the average score of the control group is only 50·7. However, to investigate this possibility the average scores of the two experimental groups in the first test were made as nearly equal as possible to that of the control group by eliminating the poorest performers. It was found that the average increase in score on retesting was diminished to some extent, yet both the experimental groups agreed in showing an average increase in their retest scores of 2·7 points, or 6 per cent.

Results according to personality types.—Of the 67 patients who took part in the investigations a large group of 54 were suffering from conditions labelled as anxiety states, depression, or hysteria, 9 were schizophrenic, 3 had an obsessional neurosis, and 1 was epileptic.

Of the 54 patients in the large group, the 38 who were given benzedrine showed an average increase in score on retesting of 4·63 points, which is nearly double that of the 8 schizophrenics who showed an increase of only 2·37 points. There is some indication, therefore, that the effects of benzedrine, as might have been anticipated, are greater in cases of emotional disturbance than in patients exhibiting in addition a more profound total personality dissociation.

Study of individual cases.—Group experiments are obviously desirable in an investigation of this nature since they help to eliminate chance and personal bias. However, "average" reactions cannot be expected in everybody. There are so many variable factors influencing the effect of a drug on an individual's response that these should also be studied. Such variables would include physical and psychological disposition, purely transient changes of mood, suggestive influence of the surroundings, and personal reactions to the tests.

We have not been able to attempt a study of all these variables in our investigation, but it was considered of interest to pick out persons with large rises or falls in their scores (10 points or over) and examine them in more detail.

It was found that only seven cases showed a large change in their score on retesting not in agreement with the general trend of the findings in their respective groups. All three in the control group carried the diagnosis of hysteria. Of these, one whose score fell (−10 points) reported that she had been hampered by headaches during the test, another with an improved score (+19 points) said she had been frightened by the first test but had got used to the test situation on the following day. Of the remaining four patients, who were in the experimental group, only two with a diagnosis of depression showed a large fall in their score following benzedrine; one of these (−12 points) explained it by saying that he did not bother so much about the second test. This effect was thought to be due to the euphoria produced by benzedrine, since normally he was a very conscientious and serious person.

As many as 10 out of the 48 patients in the two experimental groups increased their score by 10 points or more on retesting after benzedrine. Of these, some referred to an improvement in their somatic sensations when asked how they could explain their improved scores, others felt better able to do intellectual work after taking the drug. It was interesting to find that a few thought they had done worse though their actual scores showed a large improvement. For instance, a young man suffering from a depressive state with anxiety features reported very unpleasant subjective symptoms, an increase of palpitations and sweating, yet actually he showed a large rise on retesting (+ 14 points). The psychological effect which appeared to account for this improvement was that he was able to overcome his feelings of hesitancy and make up his mind more quickly. Two other patients (+ 12 and + 17 points) gave a similar explanation of their improved scores. It appeared that mental retardation in particular improved under this drug. Only one schizophrenic showed a large improvement after benzedrine (+ 12 points); he was in a state of remission during the experiments and normal except for a lack of initiative which the drug appeared to help him to overcome.

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[*] See Cattell, R. B.: A Guide to Mental Testing, London, 1936, p. 22. Cattell's figures must of course be halved for comparison with our results.

DISCUSSION OF RESULTS

These results are published in the hope of stimulating other clinics having adequate facilities at their disposal to record additional findings.

It must be remembered that this investigation was done on a very mixed series of patients. Signs are not wanting to suggest that certain types of cases respond better than others, and it may be that when further investigations are done on more homogeneous groups, more conclusive data may be obtained. The dose too might be varied as there are indications that different patients require varying amounts of the drug to produce the maximum effect. These results are concerned with the temporary effects of a single dose. What the effects of continued administration are have yet to be studied.

Although other workers have suggested that caffeine improves mental efficiency and alcohol lessens it, no published results have been found which report the effect of these drugs on similar groups of patients undergoing standardised intelligence tests. Further work on this point is obviously needed so that our findings may be compared with those obtained with such drugs. Ephedrine also might prove worthy of investigation owing to its action on the sympathetic system. The present findings appear to offer a new experimental approach to studying the effect of non-intellectual factors in intelligence test results. In addition they provide suggestive evidence that this drug may be found useful to a certain number of people who are handicapped by anxiety, mild depression, or retardation, and require temporary relief of these symptoms for the performance of an important task.

SUMMARY

An investigation was undertaken to discover the effect of benzedrine on the intelligence test scores of a group of patients at the Maudsley Hospital. The results were that a control group, given inert tablets, showed no average alteration in score on retesting. Two experimental groups given benzedrine showed an increase in score of approximately 8 per cent. The chances against this increase being purely fortuitous are about 7 to 1, and there is some indication that the drug has more effect on patients suffering from purely emotional upsets than on cases of schizophrenia where the personality changes are more profound.

Our thanks are due to Prof. E. Mapother for permission to use cases under his care at the Maudsley Hospital, and to Dr. E. Guttmann for his advice in these experiments and his coöperation in assessing the results on individual patients.

VENTRICULAR COMMUNICATION AND INTERNAL HYDROCEPHALUS AS COMPLICATIONS OF BRAIN ABSCESS

WITH A REPORT ON THREE CASES OF OTOGENIC TEMPORAL LOBE ABSCESS RECOVERING IN THE PRESENCE OF VENTRICULAR COMMUNICATION[*]

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The purpose of this paper is to present certain facts concerning the establishment of a communication between the lateral ventricle and an abscess of the brain, and to discuss the theoretical aspects of the problem. The discussion, which is confined to cases arising in association with otogenic temporal lobe abscess, includes of necessity some attention to the internal hydrocephalic factor.

Study of a group of cases has demonstrated the following causes of ventricular communication:—

(1) *Surgical trauma.*—This is mentioned in passing but is not concerned in the present discussion.

(2) Communication is commonly established by simple *approach of the necrotic process towards the ventricle.* In rapidly spreading lesions, especially if of arterial origin, the disease may be so poorly resisted that the ventricle is eroded quite early; in less acute cases, the accident may occur after a few weeks or even much longer.

(3) The communication may arise as a result of *rupture of the ventricle into the abscess,* provided that, among other things, there is high pressure in the ventricular system.

Three cases of ventricular communication will now be presented. The recovery of all three patients renders proof by the morbid specimen impossible, but the factual evidence seems to provide reasonable grounds for regarding the third cause of ventricular communication as the one responsible.

THE CASES

Case 1.—A girl, aged 16, came to hospital with a history of having had a feverish cold four weeks previously, accompanied by left earache. Five days later she had developed otorrhœa, which "dried up." Ten days before admission, after being up for a while, she had severe headache and vomiting, with a temperature of 101° F. A similar attack five days before admission was followed by drowsiness.

Examination.—Slow cerebration and drowsiness; sordes and fœtid breath. Complained of severe headache when roused. Left ear showed active acute attic disease. Bilateral papillœdema. Slight right facial weakness on emotional movement. Limb reflexes not elicited. Some loss of tone in right arm. Temp. 97° F.; pulse-rate 60; blood pressure 84/56.

Operation (day of admission).—A radical operation was found necessary to give access to the area of necrotic tympanic tegmen. There was an extradural abscess and granulations above, and a small dural track was visible, the dural incision being filled with crowding brain. Exploration immediately deep to the cortex produced a tremendous spurt of blood, flaky pus, and cerebro-spinal fluid, the stream being powerful enough to overshoot the edge of the table; it consisted mainly of cerebro-spinal fluid, and the total quantity evacuated must have amounted to several ounces.

Post-operative.—Little real anxiety was felt after the first 24 hours. Cerebro-spinal fluid was seen at each dressing for three or four days. In spite of what I would now regard as excessive interference and over-zealous instrumentation, and because of good localisation in the lesion, the patient recovered and left hospital on the 59th post-operative day. There was no trouble with brain fungus.

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[*] Cases 1 and 2, together with some portions of the text, formed part of an essay submitted for M.D. (University of Durham, 1935), and are published by permission of the council of the University of Durham college of medicine.

Subsequent history.—I saw this patient at intervals up to about five years after her illness and, apart from deafness consistent with a unilateral radical mastoidectomy, she appeared to be a well-developed, mentally normal young woman.

It may be added here that the history as given might suggest an operation on the 10th day of intracranial disease; this is, I think, due to my inadequate notes and to lack of careful inquiry into the precise details of the earlier days of the illness. I have several reasons for believing that the intracranial invasion arose during the early phase.

CASE 2.—A girl, aged 11, was admitted after seven weeks' otorrhœa. She had had a febrile attack soon after the onset, with vomiting, drowsiness, and diffuse headache. After some improvement a similar attack occurred about the 6th week of the illness, and symptoms became severe. On the day before admission the doctor noted: "Severe headache, pale, heavy-eyed and listless; fainted and began to wander. Temp. 99·5°; pulse-rate 54."

Examination.—Gross drowsiness and slow cerebration. Temp. 97°; pulse-rate 56. Left ear: high perforation with scanty, thick non-fœtid pus. Bilateral papillœdema; moderate rigidity of neck; nothing significant in central nervous system. Some hours later the pulse-rate was 50 and the patient almost comatose.

Operation (day of admission).—Conservative exposure demonstrated necrosis of tegmen antri and dural granulations. A walnut-sized cavity, containing semi-solid necrotic debris, was entered just deep to cerebral cortex. In essence this cavity was "marsupialised"—quite unintentionally however. The introduction of a probe beyond this resulted in a smart flow of clear cerebro-spinal fluid, some "pea-soup" pus, and then further cerebro-spinal fluid. The cavity was drained by two thin strips of corrugated rubber. The pus showed long-chain streptococci. Cerebro-spinal fluid obtained by lumbar puncture after operation had a cell count of 188, but no organisms were demonstrable.

Post-operative.—Cerebro-spinal fluid was observed at dressing for three days. Apart from pyodermatitis during the 5th week, there was no cause for anxiety after the 3rd day. The patient left hospital, in very good condition, on the 47th post-operative day, despite much over-interference.

Subsequent course.—I was informed by the patient's doctor (August, 1935) that her condition remained in every way satisfactory three and a half years after operation.

In this case there seems little room for doubting that the initial cerebral invasion occurred at the time of the first febrile attack in the early days of the illness; hence I assume that the lesion was approximately six weeks old at the time of operation. It has been difficult to account for the "debris cavity" adjacent to the real abscess; it is possible that it represented an area of brain tissue in a state of pressure necrosis.

CASE 3.—This patient, a woman aged 37, was admitted during an acute exacerbation of infection in a previously damaged left tympanum. I have to confess that I discharged her again after nine days, at a time when she must already have developed an intracranial lesion. This mistake resulted from inadequate observation, and to a still greater extent from an over-willingness to regard the patient as being of a slow-witted, complaining type—when in the light of later events it is clear that her state of mind was due to central invasion. On readmission a review of the chronological history from the very beginning of the illness indicated a diagnosis of intracranial abscess of 30 days' duration. In addition to signs of high tension, aphasia was notable and wide, and papillœdema was fairly marked. My pre-operative notes read: "(1) An intradural compressive lesion has been present for 30 days, perhaps a day or two longer. (2) There is now a large (left) temporal lobe abscess rather further back than usual, with fair localisation and some internal hydrocephalus. This view seems to be more reasonable than that of a small abscess with severe œdema, having regard to the present degree of intracranial tension. (3) Exploratory mastoidectomy at least is indicated. Intradural measures may be decided then or later."

Operation (day of admission).—Extradural pus and granulations were found in the middle fossa close to the tentorial extremity. The invasive site was probably in this region. The dura was extremely tense, and this factor decided tapping. Through a small dural nick a large posterior temporal lobe abscess was tapped by means of a brain needle. The stream was observed carefully; thick pus flowed smartly at first, but after a while it became obvious that pus of moderate thickness was flowing out alongside, but not intimately mixed with clear cerebro-spinal fluid. The rapid flow of pus suggested an abscess wall of no great rigidity with compression from without as the content was evacuated, and the flow of clear cerebro-spinal fluid indicated ventricular rupture during evacuation. Operation terminated after simple evacuation and patient returned to bed.

Previous experience had given me the impression that continuous drainage in a non-rigid, and therefore rapidly ablating, abscess was attended by results which were either useless, owing to extrusion of the drainage material, or disastrous from pressure-ulceration of the distal wall. This view was the basis justifying my returning the patient without a drainage-tube of any sort, in spite of the ventricular rupture.

Post-operative.—On the 3rd day, solely because of the ventricular accident, a single needling was tried, but with negative result. This procedure was repeated on the 7th day with similar result; meanwhile no clinical signs of meningitis had been noted. On the 12th day there was no evidence of subsidence of papillœdema. On the 15th day "this patient is at least in a stage of quite good localisation, free from headache, no vomiting, no drowsiness, pulse seldom much below 80, yet discs show increasing change. The clinical picture at present would indicate that, if pus is again present, the lesion is very little more than space-consuming. It must be remembered, however, that the original tapping with evacuation of an enormous quantity of pus and cerebro-spinal fluid would amount in some measure to an internal decompression." On the 18th day, because of increasing aphasia, another tapping was undertaken; half an ounce of thick pus was evacuated in a very slow stream, and a thin rubber strip was inserted along the track. "An abscess, not now communicating with cerebro-spinal system, with a degree of localisation sufficient to provide some rigidity in its walls; age now 48 days." On the 21st day the patient was not so well and there were signs of moderate compression. Removal of rubber strip was followed by a slow trickle of thinner pus (ʒii). The drain was reinserted. On the 23rd day the patient's condition was worse, and half an ounce of pus was evacuated, *at first under tension*. On the 24th day she was again worse, and over an ounce of fœtid pus was evacuated through a metal catheter (Eustachian) which was *left in situ* for half an hour (No. 6 catheter dr[illegible]e employed). The 26th day saw a change for the [illegible]. The catheter had been extruded and no pus was [illegible]. Thereafter her condition rapidly improved an[illegible] went home on the 47th post-operative day (77th [illegible]ving lesion). The aphasia had by this time almost [illegible] and the discs were subsiding.

Subsequent course.—I h[illegible] patient at intervals during the past 18 mont[illegible] six months ago she experienced some kind [illegible] consciousness for a few minutes. My friend [illegible] Pattison points out in this connexion that [illegible] abscess scar must be adherent to the late[illegible] *pulling on that structure*. Apart from [illegible] there has been nothing noteworthy sin[illegible] in the hospital.

Admitting that th[illegible] could ex[illegible] and 2 are faulty in places, fro[illegible] able to d[illegible] at that time, I feel that [illegible]. It was i[illegible] there was certainly a rupture [illegible] had do[illegible], with the proviso that [illegible] a large [illegible] was determined by the fall in intra-abscess tension consequent on surgical evacuation. I have previously mentioned that it is only possible to discuss the conditions necessary for such an accident on theoretical grounds. My own explanation is as follows:—

(a) The suppurative lesion had advanced so far that only a thin shell of brain tissue separated the abscess from the ventricle. This is not to say that localisation (walling-off) was poor, for I believe it to have been well enough established for surgical purposes in all three.

(b) There was present in each some degree of internal hydrocephalus, severe in Case 1, of moderate severity in Case 2, and of milder degree in Case 3; nevertheless, in the last case the intraventricular tension was high enough to rupture the tissue separating the two cavities, during evacuation of the abscess.

Certain points in the causation and evaluation of internal hydrocephalus may now be considered.

INTERNAL HYDROCEPHALUS

Though the importance of this factor is well recognised, the degree of tension which may exist during life is not often observable in acute abscess cases, largely because ventricular interference may be dangerous. Further, the post-mortem findings, in my opinion, are very deceiving, from the fact that the undilated, or slightly dilated, cavities suggest but a minor degree of pressure. The comparatively negative findings arise from the short course of the disease, the duration of pressure not being sufficiently long to produce such marked changes as are customarily seen in tumour-formation. The three cases of ventricular rupture just recorded, especially Case 1, demonstrate that tension may be severe and that its relief under certain circumstances may make for rapid recovery.

Observations have suggested that the hydrocephalus depends on an obstruction to free circulation resulting from pressure exerted by the abscess and its associated œdema, together with displacement of the brain stem in some cases. In the case of the third and fourth ventricle the problem is comparatively straightforward, but it is more complicated in the case of the lateral ventricle. At this level the greater anatomical complexity of the system renders it possible for a single segment of a ventricle to be shut off, with the formation of a "loculated hydrocephalus." Bagley's case[1] of abscess erosion into an isolated patent posterior horn is of interest in this connexion. Cairns and Donald[2] state that "the ventricle is always collapsed on the side of an abscess and is normal, or slightly larger than normal, on the opposite side." My own observations suggest partial agreement with this view, for whilst it is true that some portion, even the greater portion, of the ventricular body may be compressed, certain segments (anterior, posterior, or inferior horn) may continue to be patent in spite of the surrounding pressure, and therefore tension may be significant in these. In the event of the necrosis, associated with an abscess, approaching any portion of a ventricle in a state of tension, it is possible that rupture may take place from within outwards—in short, a rupture of ventricle into abscess and not of abscess into ventricle.

No probable site of rupture can be suggested in Case 3, for here the amount of cerebro-spinal fluid might have been supplied by a single segment, or "ventricular loculus." In Cases 1 and 2, however, the amount of fluid indicated a reservoir of much greater capacity than one segment. In Case 1, at least, some conclusions seem justifiable. Here the abscess was sufficiently large to cause extensive compression of the homolateral ventricle, and from the large amount of cerebro-spinal fluid evacuated, the rupturing segment was probably the anterior horn and adjacent part of the body, a degree of patency which would allow of communication with the ventricle of the opposite side.

Turning from particular cases, the importance which this hydrocephalic factor assumes in relation to the disease in general may be worth consideration. In uncomplicated brain abscess, the mechanical factor takes precedence over the infective agent, for in the absence of some such accident as ventricular erosion, death supervenes from progress of tension to a fatal pitch. In the earlier phases, that is to say until the lapse of two or three weeks, the main compressive factor lies in the widespread œdema produced by the presence of an unlocalised lesion. Later, with improved walling-off, this œdema tends to be increasingly limited, but at this time progressive internal hydrocephalus may become a significant factor. Such a combination, if it does occur, would indicate that increasing compression after the third week of the disease is by no means always an index of failing localisation; it may be that advancing internal hydrocephalus exists alongside improving localisation, so that the general compressive syndrome continues to increase, though at a lesser rate.

POSSIBLE TREATMENT

If it be granted that the hydrocephalic element is important, and bearing in mind the satisfactory outcome of the three cases already described, the question now arises as to whether any measures should be adopted to counter this factor. Three aspects of the problem may be discussed:—

(1) Should the ventricular system be tapped? Much rumination leads me to answer this question in the negative, though I am aware that Atkinson[3] regards the procedure as relatively safe. My reasons are as follows. Internal hydrocephalus is of lesser importance than diffuse œdema in that phase when abscess interference is contra-indicated, and later other measures are preferable; the advance of this factor is relatively slow and its assessment usually possible under observation. The dangers are those of rupture of the abscess into the decompressed ventricle, and of possible failure of abscess localisation from a sudden alteration in the distribution of intracranial contents. In any planned procedure it would be difficult to repeat the same conditions as were present in the three cases of rupture.

(2) Should measures other than direct interference be adopted? At the phase when hydrocephalus is probable, the possibility of direct abscess interference, either by tapping or drainage, arises. Believing that, in this stage of the disease, tension increases relatively slowly, I prefer to observe the case closely and defer evacuation as long as possible, even up to the 5th or 6th week of the lesion. If intervention is not delayed unduly, evacuation of the abscess content will usually relieve the pressure responsible for the block in cerebro-spinal circulation, and much more safely than by direct interference with the system.

(3) Dehydration therapy may be used as a means of limiting the production of fluid. Beyond finding that this measure has a sphere of usefulness, I have no controlled observations to record. The work of Temple Fay,[4] though relating to traumatic cerebral conditions, may be found to teach lessons applicable to abscess.

CONCLUSIONS

1. Ventricular communication may arise as a result of the rupture of ventricle into abscess. Recovery may follow.

2. It is clear that internal hydrocephalus is sometimes considerable, and may constitute a significant factor in increased tension.
3. Accidental relief of pressure from this cause is on occasion beneficial, but it is suggested that direct surgical attack on hydrocephalus is fraught with danger.
4. Internal hydrocephalus probably assumes an important rôle at a time when dehydration therapy and evacuation of abscess content provide the safest control.

Case 1 was admitted under the care of my former chief, Mr. S. S. Whillis, and operated on by my present chief, Mr. W. Frank Wilson, whom I have to thank for the privilege of the conduct of Cases 2 and 3.

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TRICHLORETHYLENE AS A SKIN AND WOUND CLEANSER

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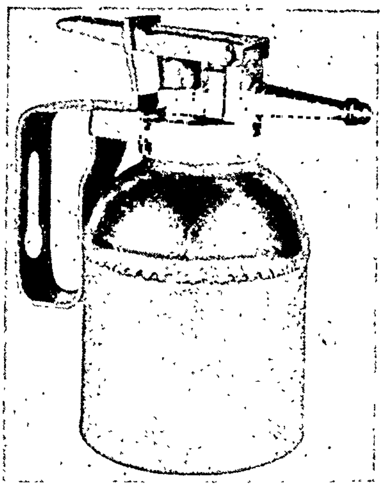
Cuts and burns are of frequent occurrence in most industrial concerns, and many of the resultant wounds, particularly in engineering and allied occupations, arise when the skin is dirty and greasy. The presence of fat-occluded dirt in a wound renders the appropriate treatment difficult; consequently a rapid, safe, and efficient method of cleansing would be of great advantage.

Trichlorethylene is being used industrially for metal degreasing, for dry cleaning, and as a solvent. It is a colourless non-inflammable liquid, and is an efficient solvent of all fats. It has an odour similar to that of chloroform and its general properties also resemble those of chloroform. It boils at 87° C. (chloroform 61° C.). It is less potent than chloroform as a narcotic, and it has been used as a general anæsthetic. Its effect differs, however, from that of chloroform in that no liver or kidney degeneration develops on prolonged exposure to sub-narcotic concentrations.[1] It resembles chloroform in tending to decompose on exposure to light, but such decomposition can be retarded by means of stabilisers which do not interfere with its essential properties and by storage in an approved amber glass bottle.

The substances most commonly used for the cleansing of wounds are ether and spirit, neither of which has the fat-solvency of trichlorethylene. In addition, of course, these products are highly inflammable and may give rise to accidents such as those described in the reports of the medical protection societies for 1935.

Trichlorethylene has been used as a wound cleanser in twelve factories of the I.C.I. (Metals) Group for three years. In a single year over 50,000 first dressings were carried out in these factories, of which at least one-third received preliminary treatment with trichlorethylene. A quarter of the persons treated were females. Trichlorethylene has been used at the Billingham works of the I.C.I., and it is estimated that 40,000 cases have been treated at these works with a preliminary washing with trichlorethylene. It has also been used for some time in the casualty department of the Birmingham General Hospital, and has recently been tried by casualty officers of the Army and Navy and by a limited number of general practitioners.



Trichlorethylene sprayer used for wound washing.

The majority of the wounds treated with trichlorethylene in the I.C.I. factories have been cuts of the fingers, but it has also been employed for lacerations and burns of other areas. The general principle has been to treat all dirty and greasy wounds with trichlorethylene, irrespective of size or severity. It is applied with an Enot Spray (see Figure), made by Messrs. Benton and Stone, which is held at a distance of $\frac{1}{2}$–2 in. from the wound. The amount used varies according to the size of the wound and the amount of grease, &c. The use of large amounts does not adversely affect the subsequent treatment of the wound. The trichlorethylene dissolves the oil and grease and flows away as a dirty liquid; after which the wound presents a moderately clean appearance. An antiseptic such as flavine is then applied and the wound is dressed in a normal manner. Any slight irritation caused by the trichlorethylene is immediately allayed by the application of an antiseptic.

The results of the aforementioned treatments have been closely observed, and it can be stated that the use of trichlorethylene has neither delayed healing nor predisposed to sepsis. The following cases illustrate the healing of minor, intermediate, and severe wounds treated in this way.

Case 1.—Bricklayer's labourer. Oct. 14th, 1935: contused wound of right index-finger due to trapping of the finger in a concrete-mixer. Oil and grease removed from finger with trichlorethylene and a Monsol dressing applied. Oct. 15th: dry dressing. Oct. 16th: finger healed; no further treatment necessary.

Case 2.—Office boy. Feb. 26th, 1936: lacerated wound of left knee from bicycle accident; oily wound, probably due to bicycle chain. Wound cleansed with trichlorethylene, and iodine and a dry dressing applied. Further dry dressings until March 6th, after which no further treatment was necessary.

Case 3.—Fitter. Jan. 14th, 1936: lacerated wound on the back of the left hand and index-finger with avulsion of the nail due to trapping the hand in machinery; the wound was contaminated with oil and bitumen. Cleansed with trichlorethylene; five horsehair sutures inserted and acriflavine applied. Redressed with this until Jan. 22nd, when the sutures were removed and iodine and a dry dressing were applied. Feb. 3rd: returned to work with protection of the nail-bed.

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[1] Taylor, H.: Jour. Indust. Hyg., 1936, xviii., 175.

CASE 4.—Labourer. Oct. 3rd, 1935: first-degree burns of the left forearm due to monochlornaphthalene from bursting of a pipe. Monochlornaphthalene was removed with trichlorethylene. Opium was not required for a burn of this extent, although the cleansing was moderately painful. Gauze soaked in Solubes of tannic acid (Martindale) was applied with a bandage, and more tannic acid was poured daily on the bandage without disturbing the dressing until Oct. 17th, when no further treatment was required.

Trichlorethylene has been found beneficial in the treatment of tar burns, and an outstanding case has been recorded by one of us (H. B. T.)[2] in which the serious effects of large burns were avoided. It has almost no antiseptic power, however, except when emulsified with water. (In such circumstances its Chick-Martin coefficient is 0·9.) Hence in most cases it is advisable to treat the wound with some recognised antiseptic after the preliminary cleansing with trichlorethylene. There is no evidence that the trichlorethylene affects the efficiency of the antiseptic, and no contra-indications to the use of trichlorethylene have been observed. It does not injure the skin when applied frequently over long periods, and when used as soap (i.e., Westropol) it is of particular value for routine cleansing of the skin of workers who use tar and allied products. Thirty workers employed on tarring containers have used westropol continuously for cleansing their skin over a period of two years, and in no single instance has any deleterious effect on the skin been noted. After using westropol they rub into the skin a mixture of lanolin and cotton-seed oil to replace any fat which has been removed, and the skin of their hands and forearms is in very much better condition than that of the average workman.

The chief precautions to be taken in using the trichlorethylene spray for wounds is to ensure that the ventilation of the ambulance room is adequate to prevent any narcotic symptoms arising. It is also advisable to prohibit smoking while the spray is being used, since there is a possibility of injurious decomposition products being inhaled by the smoker.

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[2] Brit. Med. Jour., 1934, ii., 1219.

CLINICAL AND LABORATORY NOTES

A CASE OF SIMMONDS'S DISEASE

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Simmonds's disease, or pituitary cachexia, is a clinical state caused by destruction of the anterior lobe of the pituitary gland and characterised by extreme loss of weight, premature senility, and loss of sexual function. There are also typical skin changes with loss of hair and teeth and lowering of the general metabolism as shown by hypothermia, bradycardia, and low blood pressure, together with mental retardation usually associated with depression, inertia, and irritability. Originally described by Simmonds in 1914[1] the condition has since been reported frequently on the Continent, but very seldom in England.[2-4]

The disease is progressively fatal and usually terminates suddenly. Its duration is usually one or two years, but it may be only a few months, or on the other hand the patient may live 30 or 40 years. Where it has lasted a considerable time there is a curious shrinkage of the viscera, known as microsplanchnia, and secondary atrophy of all the other endocrine glands.

The disease is commoner in women than men and often follows pregnancy. Other causes include tuberculosis, syphilis, metastatic abscess, thrombosis and embolism, tumours and fracture of the skull with hæmorrhage about the midbrain. In the following case it was the result of embolic infarction immediately after the end of a pregnancy.

A married woman, aged 26, was first seen on March 4th, 1936, at the Royal Free Hospital. Two years previously she had had a normal pregnancy and been delivered of a baby weighing 10½ lb. She had always been healthy and had had no serious illness. On Nov. 7th, 1935, she had given birth to twins—labour being induced for toxæmia at 8½ months. Dr. J. Hepburn, to whom I am indebted for these particulars, states that about five minutes after the delivery of the second child she suddenly collapsed, although there had been no excessive bleeding. An injection of 15 minims adrenaline was given and she gradually recovered, but three days later she developed severe headache and was unable to sleep. The urine was normal. After a further two days she discovered that she was unable to see anything. The headache lasted about six days and gradually faded, but the blindness persisted. Three weeks afterwards her fundi was examined and a diagnosis of hæmorrhage and destruction of the right optic nerve was made. The left fundus was normal; the total blindness was accounted for by the fact that as a child she had had a squint in the left eye which had been corrected, and that this eye had remained "lazy" and had never been properly used. The patient meantime remained very depressed, took no interest in the twins, refused her food, and looked pale and ill. Her condition continued to deteriorate during the next two months, and on March 4th she attended the Royal Free Hospital.

There she complained that she felt persistently weak and listless and was always cold. Her eyesight was still very poor, but it had improved and she was now able to recognise large print. She still suffered from anorexia and up to a week previously had vomited frequently. (The husband stated afterwards that she complained that everything tasted salty and that though often thirsty, she only cared for water to drink.) Her weight before the beginning of the last pregnancy had been 11 st. 8 lb. and was then only 8 st. 2 lb. For a few weeks after the confinement she had suffered from insomnia, but since then she had been sleeping more soundly than usual. Her hair, which had previously been thick and glossy, had recently become brittle and was now falling out in handfuls. There had been no return of the menses since the puerperium.

On *examination* she appeared at least fifteen years older than her age. She was slow to answer questions and her speech was rather slurred, which gave the appearance of mental sluggishness. There was a curious marble pallor of the face and the mucous membranes were pale. The skin was dry, with a shiny contracted appearance, whilst over the abdomen it was conspicuously coarse and thickened, with a deep brown pigmentation and superficial desquamation. The patient was very thin and there had been much recent loss of weight. The scalp hair showed definite areas of alopecia. Axillary and pubic hair were both present. The nails were brittle and shiny, but there was no flattening. The blood pressure was 118/88 and the right fundus showed optic atrophy.

A provisional diagnosis of pituitary aplasia was made and the patient admitted on April 3rd for further investigation. Her condition was much as it was when first seen except that she had lost a further 7 lb. in weight. Her sight was further improved and there had been no recurrence of the vomiting.

Special investigations.—Right eye: vision less than 6/60; optic atrophy and macular degeneration; uniform contraction of field of vision. Left eye: vision 6/36; no definite optic atrophy and macular region normal; field of vision contracted. Radiography of skull: pituitary fossa deep but clinoid processes quite normal. Wassermann reaction of blood negative. Blood count: hæmoglobin, 55 per cent.; red cells, 4,840,000 per c.mm.; colour-index, 0·57; white cells, 5650 per c.mm. (polymorphs 51 per cent., lymphocytes 45·5, eosinophils 1·0, monocytes 2·5). Blood-urea: 61 mg. per 100 c.cm. Urea concentration (15 g. urea in 100 c.cm. water): maximum value 2 per cent. urea. Fasting blood-sugar: 0·068 per cent. Glucose tolerance: (after 100 g. by mouth) ½ hour, 0·120; 1 hour, 0·100; 1½ hours, 0·100; and 2½ hours, 0·068.

Progress.—The patient was kept at rest and given iron and ammonium citrate (90 grains daily). Her urine output varied between 30 and 74 oz. daily, with a maximum specific gravity of 1015. At no time was there any albuminuria. The pulse-rate remained between 60 and 88, the temperature (mouth) was 97°–98°, and the blood pressure 110/72–100/50. The hæmoglobin rose from 55 per cent. to 70 per cent. in one month and the blood-urea fell to 38 mg. per cent. She put on 2 lb. in weight and her general condition improved slightly. Her mentality on closer observation appeared fairly normal and she became much less depressed. Her appetite and eyesight improved considerably and there was no further loss of hair.

She was discharged on May 5th and remained at home quite well till two days before her death on August 12th. Her husband reported that during this time she appeared much more cheerful and active than previously, never suffered from headaches, and ate and slept normally. There had been no return of the menses and the weight remained stationary. She occasionally complained of backache. On August 10th she complained of a headache which persisted and was associated with definite photophobia. Twenty-four hours later she had a transient phase of incoherent speech. Early next morning she was found lying in bed with her jaw set and her hands tightly clenched ("as though she had had a convulsion"). She was completely unconscious and vomited once. She was immediately admitted to St. Mary's Hospital, Highgate. She was then speechless, lay curled up in bed avoiding the light, and was extremely irritable. Five hours later she died.

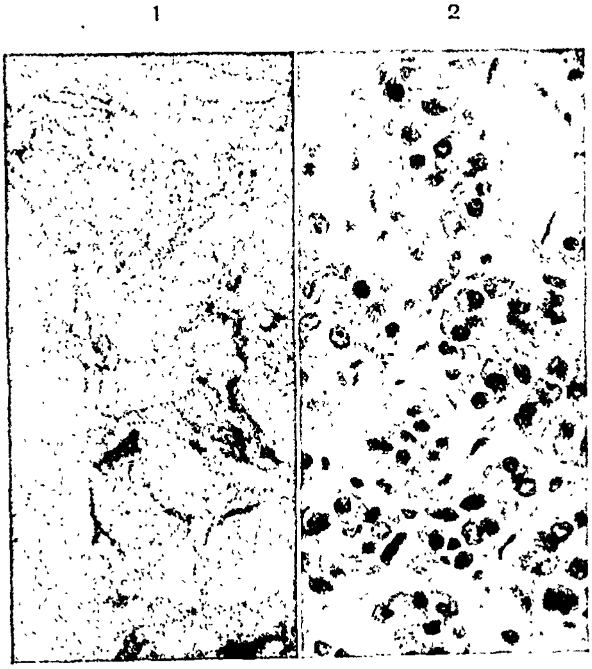

FIG. 1.—Section through anterior lobe showing replacement of normal cellular pattern by a matrix of loose fibrous tissue. (× 215.)

FIG. 2.—Similar section through pituitary gland of a normal female, aged 33, to show normal glandular structure. (× 215.)

Post-mortem examination.—The following is a summary of the finding sent me by Dr. W. G. Barnard from the Archway Laboratory (L.C.C.): "(1) Extremely scanty degenerate anterior lobe cells in a fibrotic œdematous anterior lobe of pituitary. (2) Posterior lobe slightly smaller than usual but cells normal. (3) Multiple hæmorrhages in both lungs and slight broncho-pneumonia. (4) Congestion and œdema of liver. (5) Thyroid normal in size. (6) Spleen normal size. Slight excess of polymorph cells. (7) Cortex of suprarenals definitely shrunken. (8) Slight diffuse fibrosis of cortex of kidneys. (9) Congestion and œdema of brain."

Dr. Barnard kindly let me have the remains of the pituitary gland for further examination. The anterior lobe was extremely shrunken and had a homogeneous gelatinous appearance with complete loss of the normal pattern. The section showed a collection of loose œdematous fibrous tissue in which it was impossible to *detect any normal functioning gland cells. (Figs. 1 and 2.)*

Many of the reported cases of Simmonds's disease have not been recognised till after death, but in this case the diagnosis was made early. The sudden onset of the illness after a confinement was clearly associated with the presence of multiple emboli in the circulation, one of which lodged in the artery supplying the *anterior pituitary while another obstructed the right* retinal artery. The subsequent effects of pituitary deficiency were shown by the loss of weight, the anorexia and vomiting, the loss of hair, and change in texture of the skin. There was also an anæmia with low colour-index, a low blood pressure, and a low resting blood-sugar with increased glucose tolerance. Whilst there was at first distinct apathy and exhaustion there were no other conspicuous mental symptoms and, after the acute onset, no headache.

The pigmentation of the skin over the abdomen has been observed in many other cases and is possibly related to suprarenal deficiency. Absence of menstruation is also a usual finding and indicates a reduced functional capacity of the ovaries; but in this case it must be remembered that the patient only survived nine months after the termination of her last pregnancy. Bradycardia, eosinophilia, and hypothermia, which have been described in some of these cases,[5] were absent here. Post mortem there was no microsplanchnia, probably because of the relatively short duration of the disease.

The complaint of the salty taste in the mouth is of interest in view of the fact that these cases have been found to have a poor ability to excrete NaCl (Zondek,[6] Marx,[7] also Jungmann [8]). Unfortunately in this case the symptom was only reported by the husband after the death of the patient and the point was not investigated.

The sudden termination of the illness after what appeared to be *a partial recovery is of great interest.* A similar sudden end after a slight but definite improvement is reported in other cases, particularly that of Aitken and Russell.[2] It is a reminder that *in cases of sudden death in patients* who have supposed to be suffering from indefinite nervous symptoms of the "anorexia nervosa" type and in whom no obvious cause is seen post mortem, the pituitary gland should be specially examined. A similar dramatic end with brief terminal cerebral irritation suggestive of cerebral hæmorrhage is sometimes seen in cases of Addison's disease.

The patient was under the care of Dr. Dorothy Hare and Dr. D. T. Davies to whom I am grateful for permission to publish the case. My thanks are also due to Dr. Hepburn for details of the patient's history, and to Dr. Barnard for the use of his pathological report.

(References at foot of opposite page)

A CASE OF PULSUS ALTERNANS

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The following case may be of interest because of the bearing it may have on the causation of pulsus alternans.

A woman of 60 known to have high blood pressure for about eleven years was admitted to Selly Oak Hospital on April 29th, 1936, with severe epistaxis. Her heart was found to be much enlarged to the left, the position of the apex-beat being in the sixth space in the anterior axillary line. On palpation at the apex one felt a strong beat followed by two weaker ones, and on auscultation the same sort of thing could be appreciated from the intensity of the heart sounds. In addition, the second weak beat appeared to be somewhat premature in relation to the other two. At the wrist a regular sequence of three beats all different in tension could be made out, a strong beat followed by a weaker one, and finally and somewhat prematurely a still weaker beat. Represented diagrammatically it would look something like this:

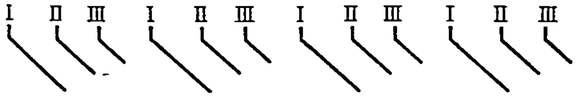

FIG. 1.—I = Strong beat. II = Weaker (alternating) beat. III = Extrasystole.

The rate at the apex and wrist was the same and varied between 70 and 80 per minute.

The blood pressure apparatus registered three different systolic levels in regular sequence: 210, 180, and 160 mm. Hg respectively, the diastolic being approximately 100 mm. Hg. A striking visual proof of the above finding was provided by observing the column of mercury in the sphygmomanometer, because at 210 mm. Hg it was seen to oscillate at one-third of the pulse-rate, at 180 mm. Hg at two-thirds, whilst at 160 mm. Hg all the beats were coming through. The electrocardiogram (Fig. 2) shows sinus rhythm with ventricular extrasystoles every third beat. The intervening "normal" beats appear equal in amplitude.

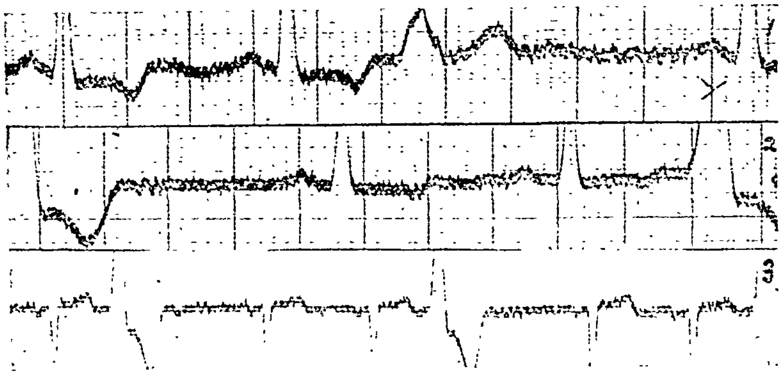

FIG. 2.—Ventricular extrasystoles occurring every third beat. Inversion of T_1 and T_2. Left axis deviation.

The patient, who lost a great deal of blood (on admission the hæmoglobin was 75 per cent. and the red cells 3,840,000), soon stopped bleeding and was improved by three weeks' rest in hospital, sedatives, and iron. She was seen subsequently as an out-patient on May 28th and June 11th, when the physical signs were found substantially unaltered. On August 7th a complete change was noted. Only a very occasional extrasystole was present and the blood pressure was 260/120 mm. Hg. No alternation was detected. The electrocardiogram taken on that occasion (Fig. 3) shows one ventricular extrasystole, but otherwise it is similar to the previous one. She remains comparatively well apart from moderate shortness of breath on exertion and a very occasional attack of paroxysmal nocturnal dyspnœa.

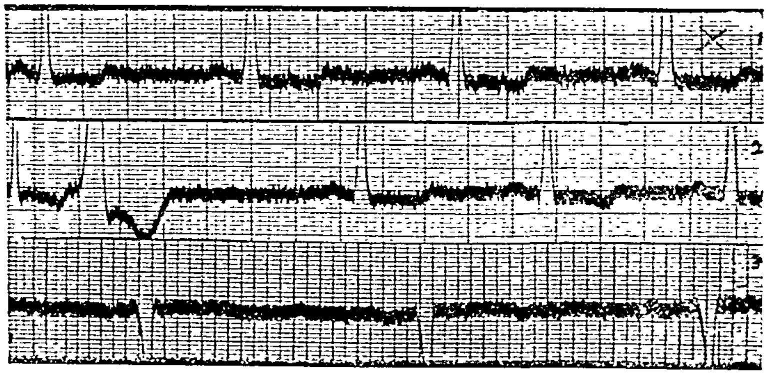

FIG. 3.—Single extrasystole recorded in lead $_2$. Inversion of T_1 and T_2 and left axis deviation as in Fig. 2.

The case shows the association of a regular sequence of ventricular extrasystoles with pulsus alternans giving rise to three distinct levels of systolic blood pressure. It is known, of course, that premature beats may initiate or reveal a tendency to alternation, but I have not been able to find a record quite like this one, except for a tracing in Gravier's monograph[1] which bears some resemblance to the present case.

The explanation for the alternation which one is tempted to offer here is that the compensatory pauses which follow the extrasystoles (III) allow the ventricle to fill much better and thus produce strong beats (I). In the beats that follow (II) the ventricle has only the "normal" length of time to fill and thus they are relatively weaker. If this be the true mechanism of alternation in this case, there is no need to invoke the usual explanation for alternation—namely, partial ventricular asystole. It may also mean that in the presence of regular extrasystoles the prognosis of pulsus alternans need not be so gloomy.

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[1] Gravier, L.: L'Alternance du Cœur. Paris, 1914.

(*Continued from previous page*)

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MEDICAL SOCIETIES

BRITISH INSTITUTE OF RADIOLOGY

THE tenth annual Radiological Congress and Exhibition was opened by Sir E. FARQUHAR BUZZARD on Dec. 2nd. Prof. J. A. CROWTHER, president of the Institute, introduced Sir Farquhar, who expressed his appreciation of the invitation and the great impression made on him by the increasing ingenuity and skill of the manufacturers exhibiting at the congress.

Development of Radiology

There had been, said Sir FARQUHAR, no such thing as radiology in his student days. Several other new developments since that time had made an instantaneous appeal to the public imagination; for example, bacteriology, modern psychotherapy, and endocrinology. The appeal to the public constituted a danger to the public, and exploitation had been seen in each case. Looking back, he was much impressed by the extraordinarily clean record of radiology in that respect. This he ascribed in part to the Institute; there was nothing quite like it in the field of medicine. Much good could always result from the common esprit de corps of a number of people engaged in the same problem, but looking at it from different angles. The Institute had performed a very fine piece of work since its inception. To some extent Lord Nuffield's recent benefactions to Oxford University had been excited by his interest in the X ray cinematographic work of Dr. Russell Reynolds, who had rendered great help in installing two of his plants in the Institute of Medical Research. The university had been very fortunate in securing the services of Dr. A. E. Barclay as hon. radiologist. X ray cinematography had a very big field in front of it; in the field of the ancillary sciences, and in research and teaching in those sciences, as well as in its direct application to medicine. Lord Nuffield's benefaction would be used, in general terms, to bring together the clinical and the laboratory side of medical research. This could be done in Oxford better perhaps than anywhere else. Advance in medical knowledge must more and more, he thought, result from combined team-work rather than from the isolated work of individuals.

Bone Tumours

On the following morning the chair was taken by Dr. RUSSELL J. REYNOLDS and Dr. J. F. BRAILSFORD opened a symposium on bone tumours, taking as his subject the importance of radiography in early diagnosis. Other methods of investigation were clinical and histological. A tumour might force itself on the patient's attention by size, restriction of joint, pain or persistent and severe pain after coincidental injury. A complete history was essential, but would not give definite diagnosis before the growth threatened the limb or the life of the patient. The evidence obtained clinically was extremely valuable, and might be essential, in interpreting histological or radiological data. Great difficulty might be experienced in distinguishing tumour processes from normal repair processes in bone. Often lesions with clinical and histological evidence of bone tumours proved to be traumatic. Histology might be the decisive evidence, but it should not be sought by biopsy until radiographic evidence had been taken. Radiology was the youngest of the three methods, and there was ground for the scepticism with which the conservative regarded it. The pictures submitted sometimes failed to give any demonstration of the phenomena referred to in the report, and were too often made by persons who did not know the anatomy of the parts. Bone and joint radiography seemed to be regarded by many doctors as the simplest branch of the art, but it was by no means simple. The radiologist must use special knowledge to form an opinion, based on clinical and pathological evidence, as to the interpretation of the changes shown by radiography. In many cases the radiographic changes were indefinite, and the report should contain mention of the conditions which might cause such changes, taking into consideration the clinical and pathological findings in the case. Each method of diagnosis played its part and none must be neglected. Innumerable indefinite features would loom each day before the seeker for early signs. Only by patient study would the radiologist learn how to distinguish them and just when and where truly characteristic features first appeared. This work demanded the best technique available. It was most important to obtain a complete radiographic record before instituting any therapeutic measure. Notwithstanding all the possible fallacies, radiology must be the first court of appeal in bone cases because it was capable of revealing the pathology before clinical or histological evidence could do so. A central bureau of information about bone tumours would be of the greatest value.

OSTEOCLASTOMATA AND ANGIOMATA

Osteoclastoma (formerly called myeloid sarcoma) bore an unknown relation to trauma. It was most often found about the knee or elbow, though it might appear anywhere. Metastases had been reported, though some observers had said they could only arise after malignant metaplasia. The simple nature of the true osteoclastomata was shown by the fact that they could be severely mauled by the surgeon without metastasis. They were seldom found early, and were usually sought because of tumour, dull pain, or spontaneous fracture. By this time the epiphysis had usually fused and extensive destruction had taken place. Dr. Brailsford thought they started in the juxta-epiphyseal area of the diaphysis. The epiphysis might be more rapidly destroyed because of its softness and vascularity. The tumour acted essentially as a solvent of bone; there was no sclerosis. The X ray showed a rarefied area, sometimes localised, sometimes replacing all the cancellous tissue. In the early stages no change could be detected in the bony shell. In the tumour area only a few strands of bone could be seen in the coarse mesh. The subarticular bony boundary showed temporary and protective sclerosis. The tumour grew expansively, but its cells did not invade the bone. Deposits of amorphous calcium might later blur the outlines and increase the density. Many lesions produced radiographic appearances which, to the casual observer, resembled those of osteoclastomata. It was important to know what treatment had already been applied as the effects of X radiation and α radiation suggested quiescence and healing. Regeneration and consolidation were very slow whatever was done, but the method of choice seemed to be curettage of the growth and replacement by bone chippings, provided the tumour had not affected the stability of the limb. Patience was important. Radiation did destroy the tumour cells. Resection was better than radiation for degenerate tumours. Amputation should be reserved for cases where the tumour had seriously affected the use of the limb.

Angiomata were of three types: in one the whole bony structure was invaded and changed; in the second there was outgrowth from the surface. Some seemed to arise from trauma and others from congenital defects in the vessels. They were relatively frequent in the vertebræ and were increasingly frequent as age advanced. The involved vertebra was slightly broader and shallower than its neighbours. The bone was less dense than normal and showed coarse trabeculation following the normal architecture. The vertebra looked semi-translucent. Fibrous Paget's disease did not produce this phenomenon, and showed lesions elsewhere in the body. The vertebra might collapse or press on the cord. Lipiodol injections would reveal pressure areas. Rarely the long bones were affected : phalanges, for example. Lymphangiomatous enlargement of the limb might be associated with these changes in all bones. Such bones could not stand strain and would bend, producing gross deformities. The second type produced very different changes: fine bony trabeculæ radiated from a centre and became coarse and wavy, looking like a shaggy head of hair, and the tumour produced a bulbous, or fusiform swelling with a regular periosteal border. No recurrence followed simple resection, and bone graft was usually successful in repair. The third type affected the ends of long bones and took the form of a soap-bubble-like expansion, with extensions into the cancellous tissue. It seemed to start in a subperiosteal hæmatoma. The outline was clear. It might be mistaken for osteoma. It seemed to respond well to radiation.

OSTEOCHONDROMATA, CHONDROMATA, AND BONE CYSTS

Dr. R. E. **Roberts** said that the anatomical and pathological facts known about these conditions of bone should be considered in their relationship to radiology. The subject bristled with difficulty; in no branch of bone pathology was knowledge more scanty. Osteochondromata, tumours of varying proportions of bone and cartilage, could be divided into simple osteochondromata and exostoses. The former were tumours whose radiological appearance depended largely on the relative proportion and distribution of bone, cartilage, fibrous and myxomatous tissues. The single exostoses grew near the ends of long bones and might cause pain from pressure on soft tissues or inflammation in the overlying bursa. Radiographically the tumours appeared as outgrowths on the diaphyseal side of the epiphyseal line, the ends being bigger and broader than the shafts. The most likely explanation of the tumour was that during growth a part of the edge of the metaphyseal cartilage became detached and continued to grow independently at right angles to the main line of growth. Growth ceased at the same time as in the parent bone, and the cartilaginous cap became ossified, unless malignancy supervened.

Multiple exostoses, better known as diaphyseal aclasia or hereditary deforming chondrodysplasia, usually appeared during the period of active growth and affected only bones in which cartilage came to be covered by periosteal bone. The condition did not affect bones formed entirely in cartilage or entirely in membrane. Clinically it caused shortening of stature and bowing of forearms and legs. Pain and dysfunction might result from pressure. Local exacerbations in patients over thirty might be the first indication of malignant change. The characteristic radiological appearance included broadening of the metaphyseal ends of the bones, thinning of the cortex, and wide, irregular translucent medullary spaces. The epiphyseal axis was often distorted. The essential factor was a retardation of the modelling process whereby new bone was pruned and incorporated in the intrinsic architecture of the shaft. There might also be aberrant growth of the cartilage cells.

Chondromata usually occurred between the ages of 20 and 30, and might be single or multiple. Those centrally situated showed as well-defined translucent areas in which there might be trabeculation. If they arose in the cortex, this was destroyed and had a depression on its surface. If the growth had perforated the surface, relics of its original cortical covering would be seen as bony flakes. Pathological fractures were frequent. Malignant changes might supervene, as in all growths where cartilage predominated. Ollier had described a unilateral variety of chrondrodysplasia in children, in which the lesions might be those of multiple exostoses or multiple enchondromata or both. The bones might show longitudinal striæ of translucency surrounded by lines of increased density; the nutrient foramina might be enlarged and there might be stippling.

The problem of bone cysts was a very difficult one; many conditions which were not cysts might give the radiological appearance of cysts, and the classification and pathological literature on the subject was confused. The solitary bone cyst was usually discovered by accident during X ray examination after trauma. It showed as a translucent area surrounded by a smooth, expanded, thinned cortex. Pathological fracture was frequent, but often the bones united to become stronger than before. The fibrous tissue in the condition known as fibrosis of bone was sharply differentiated from the bone and had all the radiological appearances of a large cyst. The difficulty was that a fibrous mass in the bone, a cyst in the bone, and a cyst in the fibrous mass all had an equal degree of radio-translucency. Many translucent areas which looked like cysts were not really cystic—e.g., the resorption of bone in osteitis deformans, or any form of demineralisation or defective calcification. The radiographic examination of the rest of the skeleton, the clinical picture, and the biochemical findings would usually give enough information to make the diagnosis clear. Myxomatous degeneration might take place in a chondroma and was usually characterised by a tendency to penetrate into the soft tissues and the demonstration of calcified remnants of the original cortex. Small round translucent areas near articular surfaces were sometimes seen around joints with chronic osteo-arthritic changes. They were caused by the fibrous degeneration of the cartilage and bone, and might contain giant cells. Bone might be involved in hydatid disease. Myxomata of bone were rare and showed local malignancy. Chronic osteomyelitis showed as a small collection of fibrous tissue in the bone.

In conclusion, Dr. Roberts urged coöperation between radiologists and pathologists. The radiologist was in a better position than the pathologist because he could investigate any bone lesion, whereas comparatively few specimens reached the laboratory.

TUMOURS OF THE JAW

Dr. H. M. Worth gave a classification of odontomes and said that dental cysts were the commonest tumours found in the jaws. They arose from normal epithelial cells which proliferated as a result of irritation from an infected tooth. The typical radiographic features were an area of bone destruction having no structure in the centre but a clear and well-defined cortex. Sometimes cysts with these appearances were found in the ascending ramus or incisor foramen. Histologically these were typical dental cysts. Occasionally it was difficult or even impossible to differentiate a cyst from a normal antrum. Points to notice were that the cortex of a cyst was usually more sharply defined and less wide than the antral wall; the cyst outline was more of a true circle; and grooves for vessels would show that a suspected area was not a cyst.

Dentigerous cysts usually occurred in young subjects and more often in the mandible than in the maxilla. Experts did not agree on their pathology. Radiographically they resembled a dental cyst, but with some part of a tooth or teeth in their cavity. Multilocular cysts were rare and almost confined to the mandible; they might be solid or cystic. The latter were commoner and the most familiar type showed an area of bone destruction involving the molar region and ramus. There was nothing to suggest multiloculation, but there was usually a coarse irregular trabeculation in the centre of the cyst. A second type showed many clearly defined cavities, and often a tooth inside the tumour. The solid type showed a honeycomb appearance with much smaller cells than the cystic type, and its differentiation from osteoclastoma was only suggested by the rather more clearly defined trabeculation and cortication of the latter. Complex composite odontomes were irregular masses of enamel, dentine, and cement of very varying size and location. They showed a very dense opacity with no regular structure or shape, separated from the surrounding bone by a narrow, dark space representing a fibrous capsule. These features distinguished them from osteomata. The compound composite odontomes were made up of any number of separate pieces. Sometimes the individual masses resembled small, badly formed teeth and had fibrous capsules. Geminated composite odontomes showed fused teeth or denticles. Dilated composite odontomes resembled teeth of which one part, usually the root, was hollowed out like a mushroom, or bulbous and clubbed. Osteitis fibrosa was not an odontome but was not rare in the jaw. Radiographically it showed much new bone formation of homogeneous density and a stippled appearance rather like orange-peel. This type occurred in the maxilla of young people and was quite soft and easy to remove. Another type occurred in older patients and was very hard indeed; under X ray the bone was dense and rather structureless. A third type occurred in the lower jaw and was found to be very hard. It caused considerable increase in the depth of the bone.

Primary Cancer of the Lung

Dr. A. C. Christie, president-elect of the International Congress of Radiology (Chicago, 1937), taking as his subject the diagnosis and treatment of primary cancer of the lung, said that in the last ten years over 500 papers on cancer of the lung had appeared. The disease had been looked upon as both rare and hopeless until 1912 when Adler published his description of 374 cases. Interest had recently been stimulated by several circumstances: (1) the fact that cancer of the lung appeared to be increasing in incidence, forming from 5 to 10 per cent. of all the autopsies on cancer; (2) the improvement in diagnostic methods, including the perfecting of X ray examinations and the introduction of bronchoscopy and bronchography. The pathology of the disease must, he said, be understood if it was to be correctly diagnosed. The types of pulmonary cancer included bronchogenic carcinoma, the epidermoid or squamous-celled type, adenocarcinoma and undifferentiated-cell tumour. From a practical standpoint, however, the position of the tumour was more important than its type or structure. Tumours arising in the peripheral portion of the lung were more likely to run a rapid course than those situated in a main bronchus. Bronchogenic carcinoma had a high rate of metastasis, and the metastatic lesions, frequently in the brain, were apt to make themselves felt before the primary growth was even suspected.

Early symptoms included persistent cough, pain in the chest, which was often localised by the patient directly over the tumour, dyspnœa, hæmoptysis, and fever. The physical signs were relatively of no importance, being usually merely those of some condition secondary to the carcinoma. A final diagnosis must depend on a combination of methods, of which X ray examination was the most important. Complications included obstruction to a bronchus, leading to atelectasis, and this in its turn to infection and bronchiectasis. An infected cavity was common and might be difficult to diagnose. Pleural effusion with a peripherally situated tumour might also confuse the picture. Here aspiration would help in the diagnosis, the fluid being centrifuged and the coagulum mounted in paraffin from which sections could be cut. Additional aid was afforded by a partial artificial pneumothorax. For accurate diagnosis, bronchoscopy was essential, but two points should be observed: (1) not to remove the sample through normal bronchial tissue; (2) to take the biopsy material from the tumour itself, and not from the inflammatory tissue surrounding it. A positive biopsy was valuable; a negative report should be received with reserve, since the bronchoscopist could not always see the tumour—e.g., if it was in an upper lobe.

After brief reference to differential diagnosis from bronchiectasis and abscess, Dr. Christie concluded with a few remarks on treatment. The criteria of operability must be established. Important contra-indications might be the position of the tumour (e.g., too close to the bifurcation), involvement of the pleura, and presence of metastases. Peripheral tumours were more amenable than others to radiation. The intrathoracic application of soft rays to the stump of a tumour might prove a valuable method in the future. What was needed now was alertness in diagnosis, and coöperation between surgeon, bronchoscopist, pathologist, and radiologist.

Two other symposiums were arranged. Dr. A. E. Barclay, who introduced the subject of anatomical variations of the alimentary tract, was followed by Sir Thomas Dunhill, Dr. Boulton Myles, and Dr. S. C. Shanks, who each took a special region of the tract. A series of papers were also read on the measurement of ionisation of currents. The seventeenth Mackenzie Davidson memorial lecture given by Mr. J. D. Cockcroft, Ph.D., is the subject of an annotation on p. 1409.

ROYAL SOCIETY OF MEDICINE

SECTION OF SURGERY

At a meeting of this section on Dec. 2nd, with Prof. G. Grey Turner, the president, in the chair, a discussion on the operative treatment of

Uncomplicated Inguinal Hernia

was introduced by Mr. Geoffrey Keynes. He said it was difficult to exaggerate the importance of the disability since it affected an enormous number of able-bodied people, and was thus probably of even greater economic importance than cancer. He had long been dissatisfied with the complacent attitude of surgery, though this was not now so great as formerly, when there was but little following-up. In his eleven years with the City of London Truss Society, he had treated 10,000 cases of hernia, and this had thrown light on two important aspects—the recurrence of hernia after operation, and the type of patient who, in the past, had been rejected as unsuitable for an operation. The matter was almost purely one of surgical technique, and he submitted that there was no hernia that could not be cured by operation. The complacency to which he had referred had been seriously upset a few years ago when Mr. Max Page reported a series of operations for hernia in policemen, a peculiarly fit and robust body of men, but which showed a recurrence-rate of 20 per cent. in direct hernia, 25 per cent. in indirect. This raised the question of an alternative method of operation. Some who were dissatisfied with the results might be tempted to try treatment by injection, but recent American contributions showed that, even with the most approved methods, at least 8–12 injections, at weekly intervals, were needed in each case. It was essential that during the whole of this time the hernia should be completely controlled by a truss, which meant that cases in which this was impossible were excluded. Even then the recurrence-rate after injection treatment was 8 per cent. It was difficult at present, therefore, to accept this method as a substitute for operation.

The causes of failure, Mr. Keynes went on, included failure of asepsis and of hæmostasis, which were elementary faults in technique, and their remedy was plain. On the more serious side, there was the mistake either of doing too much, or of doing too little. Both, in his view, had their origin in an over-standardisation of the method in common use. Another important factor was incomplete diagnosis before the operation was undertaken of the type of hernia in a given case. The discussion might reveal shortcomings in the Bassini operation, for so long the chief method. A pupil of Bassini had recently complained that the operation had been unduly abused, when in fact it had been very often inaccurately performed. Despite this, Mr. Keynes considered that it was unsuitable for a large group of cases, which included infants, children, and young adults, since it did too much. In many of these the essential was to remove the hernial sac, and the less the normal musculature was interfered with the better; unnecessary sutures through the internal oblique would only impair its function, and in many cases that muscle was unaffected.

Doing too little was bound up with making an incomplete diagnosis, chiefly in failing to detect direct inguinal hernia. His method was to incise the internal oblique and the rectus sheath, providing a flap that, when turned down, exposed the rectus muscle and covering the area through which the direct hernia was coming. Being no longer confined, the outer fibres of the rectus could be approximated to the inguinal ligament. He was not content merely with catgut suturing in this plastic procedure; it was important to take a strip of fascia from the edge of the upper flap of the external oblique, leaving it attached at the pubic spine, thus using it as a living suture. This allowed complete approximation of the flap that had been turned down from the pubic spine to the deep inguinal ring, and provided a new floor for the whole inguinal canal. That was only the first step towards success in almost every type of hernia.

For larger direct hernias, and for large indirect hernias, he thought a cure could practically always be obtained by using a more elaborate technique, such as that popularised by Gallie of Toronto. One series of 45 cases in which he had used a graft from the fascia lata gave no recurrences, and in another 33 cases, all extreme, with Gallie's technique there were only two recurrences (both being in the same patient). For some years he himself had been using a strip of fascia from the external oblique aponeurosis instead of catgut.

As to anæsthesia, many patients with hernia had chronic bronchitis with emphysema; they therefore coughed a good deal, and were liable to cough through catgut sutures. This rendered living sutures all the more necessary. Ether should be avoided, and even spinal anæsthesia could cause anxiety. He preferred local anæsthesia, though taking a strip from the thigh might be somewhat difficult. Satisfactory results could be maintained, Mr. Keynes concluded, only by having a large repertory and making a special case of each patient. Practically no case should be rejected as unsuitable for operation.

Mr. W. I. Cumberlidge (Leicester) said that a comparison of results in a provincial town with those in London would be instructive. Leicester was a compact area, and the Royal Infirmary was the only large hospital there, so that patients whose condition recurred or who needed further treatment did not go elsewhere, but came back to the same institution, and usually to the same surgeon. In the last 4½ years 1345 operations had been performed for uncomplicated inguinal hernia with 9 deaths. Omitting a month-old child who had apical pneumonia, the mortality was thus 0·6 per cent. In 5 of the fatal cases the only pathological finding was ascending pyelonephritis, there having been no previous hint of such a condition. He had been performing the Bassini operation, when repair of the inguinal canal was required, for thirty years and he believed it to be the most stereotyped in surgery. Ten years ago he began to use the fascial suture for all direct, and old indirect hernias, and his confidence in that had steadily increased. The placing of the first suture he regarded as the most important step in the operation. A questionnaire had been sent out to a large number of operated cases, and of 594 cases who replied, a satisfactory answer had been received from 517, or 87 per cent.

Mr. W. H. Ogilvie said he feared that the operation for inguinal hernia was often looked upon as a simple one, which could be left for a junior to carry out when his chief had gone to supper; yet it might well be the most difficult in surgery, and it should always be regarded as important since it was the means of returning an otherwise healthy man to work and full function. The inguinal canal was of extraordinary complexity, and the technique necessary for its repair was often a delicate one, but it should lead to a cure-rate of nearly 100 per cent.; even colossal hernia in old men of poor physique could be cured by operation of the appropriate type. Failures, then, must be due either to the operations being done by the wrong people, or to the selection of a wrong procedure. The anatomy of the living was a corollary to the pathology of the living, but not enough attention was paid to it in modern surgery. The inguinal canal was really a sphincter, and when it contained a hernia the surgeon must decide whether that sphincter was competent or incompetent. He must first remove the sac, but leave the muscular defences as little damaged as possible. Secondly, he must so reconstruct the canal that the weakened muscles were spared a task with which they could not adequately cope. Bassini's operation was rampant almost everywhere. Yet he quite agreed that for early hernias the method was unnecessary. The conjoint and cremaster muscles could not be trusted to do their job if they were tied down and strangled in a row of stitches. He pleaded for the abolition of the Bassini as a standard operation, for then surgeons would be forced to do either less or more in these hernia cases: less in hernias with undamaged muscle, more in hernias with muscular failure. Treatment aimed at either restitution or reconstruction, and there was no sphere for half-hearted interference.

Mr. C. C. Holman (Northampton) said he had done 42 operations for inguinal hernia in which he had removed the sac, and in some of those cases he had supplemented this by overlapping the aponeurosis of the external oblique. Of 38 cases which he had followed up there had been 4 recurrences. Later he had selected his cases; if the hernia was small and the patient young, he contented himself with dealing with the sac; in others he added some plastic procedure. He followed up 75 of these after two years, and there were 5 recurrences among them, 4 of which had had simple removal of the sac.

Mr. A. K. Henry (formerly of Cairo) spoke of a method he used of extraperitoneal approach for operating on uncomplicated hernia, following the practice of Sir Lenthal Cheatle. In Egypt bilateral ureteric lesions were very common, hence he was very familiar with the mid-line extraperitoneal approach. For hernia operations there had to be relaxation of the abdominal wall, and the spermatic cord must be kept on the stretch.

Mr. Philip Turner said his own definition of an uncomplicated inguinal hernia was a small hernia in a child or young patient, without any stretching of the muscles. His impression was that in such cases all one had to do was to remove the sac, and this should be done with a minimum of damage to the normal structures; one of the secrets of success was to attend to the opening in the fascia transversalis. He agreed with all that had been said about Bassini's operation; it had become standardised and he did not think patients for it were usually selected in the right way.

Prof. A. W. Sheen (Cardiff) said he taught students that in operations for hernia it must be "the sac, the whole sac, and nothing but the sac." He welcomed the remarks of Mr. Henry. One could not get to the sac without cutting through the structures in front of it, and one of them was the internal oblique muscle. During the war he saw many cases of recurrence of hernia, and they were largely due to the whole sac not having been removed; this was a greater factor than sepsis. He was quite sure that muscle would unite to fascia.

Prof. Lambert Rogers (Cardiff) said all his instincts were against mutilating the sphincter in a healthy young person. He thought that not only should the sac be removed, but also the dimple left should be divided, as was done by Kocher, by turning the flap through the musculature.

Mr. Philip Mitchiner considered there were only two operations for hernia. One was aimed at interfering as little as possible, simply removing the sac as thoroughly but as gently as possible, and leaving the natural muscular mechanism of the inguinal region to prevent a recurrence. The other was for cases in which the musculature had become lax and atrophied, and here he considered that a fascial graft offered the only adequate means of curing the hernia, after the sac had been removed.

Mr. C. H. S. Frankau remarked that whatever means of suturing was adopted, it was of ultimate importance thoroughly to clean the tissues it was proposed to suture. He had seen people doing complicated sutures with blobs of fat adhering to the surfaces to be joined. If one took the conjoint tendon and Poupart's ligament and cleared away all obstruction, they would not only join well, but would "stay put."—Mr. E. T. C. Milligan spoke of successful use of filligrees. This method was condemned mostly by those who had learned to do so from their teachers, not because of what they had themselves seen. But he agreed that the living suture gave better results, and recurrences after this were seldom seen.—Mr. M. F. Nicholls said he felt curious as to what happened in infants with hernia whose condition was said to have been cured by the wearing of a simple truss, or had been cured by the passage of time. It was his impression that these were the cases which came to the surgeon at between 16 and 20 years of age.—Mr. Delisle Gray from his own experience said that he had no doubt that patients could be cured by the injection method.—Mr. Lloyd Williamson advocated the use of the fasciatome, which, he said, saved valuable time in the operation.—Mr. W. M. McCullagh questioned whether it was necessary always to remove the sac. In gynæcological operations he had seen inguinal hernia treated by dividing the sac at its neck, suturing it, and leaving the portion in the canal where it was, without disturbing it.

The President thought Bassini's operation did not deserve all the condemnation it had had in this discussion. That surgeon's record was a very great one, and no other operation had yielded such good results all over the world. But the operation should only be done by those who believed in it. Many of the failures were due to bad technique and he had been surprised how often surgical canons had been ignored. The fascia lata method was an important addition to the surgeon's armamentarium.

SECTIONS OF THERAPEUTICS AND MEDICINE

At a joint meeting of these sections held on Dec. 8th the chair was taken by Dr. Dorothy Hare, president of the section of therapeutics and pharmacology.

Prof. A. St. G. Huggett opened a discussion on

Therapeutic Methods of Arresting Hæmorrhage

Medicine, he said, used measures based on physiological or pharmacological principles; they fell into two main classes: prophylactic steps involving the removal of the primary cause where that was known; and therapeutic steps after bleeding had begun. Local types of urgent hæmorrhage were capillary, venous, or arterial. Measures might be directed to restraint of the flow of fluid blood by lowering the pressure in the vessel, or to consolidating the blood at the site of leakage. Blood pressure in an artery was maintained by three main factors: the volume of the circulating blood, which did not usually vary much; the output from the heart; and the peripheral resistance. Output depended on inflow and that on venous pressure, and that in turn on venous inflow. This was maintained by the muscular and respiratory pumps. Suction in the thorax dilated thin-walled capillaries within it, and the descent of the diaphragm raised abdominal pressure and drew blood up into the chest. Every muscular contraction pressed blood into the capillaries and on into the veins. The aggregate effect of many muscles in exercise was even greater than the aggregate effect of respiration. The nutrition of the cardiac muscle was an important factor in the power of the heart, and, by Starling's law, the power was also increased by increased intracardiac pressure. So in exercise the blood pressure was forced up. Increase in rate alone did not greatly affect the pressure, but cardiac reflexes correlated the rise of venous pressure with heart rate. Peripheral resistance partly depended on viscosity, which did not vary much except after hæmorrhage, but the main factor in its maintenance was arterial contraction due to local and nervous stimuli: temperature and metabolites caused local contraction and the sympathetic nerves caused contraction from the vasomotor centre. The centre was excited by various afferent nervous stimuli and by local chemical factors.

To stop blood flow, therefore, all factors causing rise of pressure must be stopped. Rest was important; the less muscular activity and the less emotional stimuli the better. Abnormal relaxation might be required and obtained by giving morphine and other sedatives. Adrenaline produced local vasoconstriction by acting on the nerves at the site of hæmorrhage, but must not be allowed to exert its general pressor effect. Vasopressin acted on the plain muscle of the vessels, also producing local constriction. Consolidation could be encouraged by protein precipitants such as tannic acid, ferric salts, and alum. They produced no true clot, and were not very efficient. The subject of blood-clotting was overloaded both with theories and with names. The current hypothesis said that the essential change was the alteration of the protein fibrinogen to the gel fibrin by the action of an enzyme thrombin. This was present in blood as a zymogen, thrombogen—the nature of which had aroused much discussion; it was a globulin, and was altered to thrombin through the action of calcium ions and thrombokinase or cephalin, which was liberated by tissues. A deficiency or excess of calcium inhibited the change. A deficiency of any of the other three factors would delay the clotting. Each was known to be absent in certain diseases. Hæmophilia was probably related to the prothrombin which was so linked that the kinase could not activate it. The most potent therapeutic agents were thrombin-like materials—e.g., snake venom. Vipers, notably the Russell viper, contained thrombin. The ordinary hæmophilic's kinase could not act; therefore an active preformed agent was necessary. Thrombokinase could be prepared from any tissue—e.g., brain or muscle—and would be of use for other patients suffering from a deficiency of kinase. Agents to stop hæmorrhage might therefore be classed as: kinases; thrombins; mechanisms to produce increased thrombin or fibrinogen (this probably explained the value of protein and serum injections, but their action had never been fully explained); calcium; or physical means. Like all enzymes, the clotting enzymes could be encouraged by warmth and stopped by excessive heat. Boiling saline had its uses. They were also susceptible to changes in hydrogen-ion concentration, and excessive alkalinity stopped their action without solidifying the blood. Carbon dioxide inhalations would sometimes encourage clotting.

Dr. MAURICE DAVIDSON discussed the principles which should guide the physician in the conduct of a case. The treatment of hæmorrhage depended on its cause—a platitude which was worth repeating in view of the tendency to treat a symptom instead of the disease, especially at urgent and anxious moments. Correct conduct must be the outcome of scientific training and common sense. The epistaxis or hæmoptysis of hypertension or nephritis might be beneficial, but if excessive might need to be checked. The duty of the practitioner was threefold: he must decide the differential diagnosis, estimating the significance of the symptom in relation to the disease from which it was believed to arise; he must recapitulate in his mind the methods of treatment that he might use and consider their advantages and disadvantages; and he must try to assess the value of any proposed therapy in regard to all the circumstances of the individual patient and his needs.

Bleeding might come from the alimentary, respiratory, or genito-urinary tracts, or be due to hæmopoietic disorders or virulent bacterial infections. The commonest cause of hæmoptysis was pulmonary tuberculosis and the amount brought up varied enormously. Life was seldom lost through lack of appropriate treatment. A fatal hæmoptysis usually ended life before medical aid could be summoned. Empirically, large doses of ergot by the mouth seemed to work; more scientific and equally successful were injections of Hemoplastin intramuscularly and 10 per cent. calcium gluconate intravenously. Hæmoptysis due to pulmonary congestion in mitral stenosis was too often attributed to tuberculosis, and failure to deal with the underlying heart failure resulted. Bleeding due to other disease of the lung—cancer and bronchiectasis, for example—demanded attention to the cause. The hæmorrhage in these cases seldom called for specific symptomatic measures.

Treatment was both difficult and important when the blood came from the digestive tract. The problem must be regarded from the standpoint of fundamental principles. Life had been lost from failure to adopt surgical measures at the optimum moment, after due transfusions, and this fact should not be forgotten in enthusiasm for other methods of treatment. Transfusions were valuable for cases not to be submitted to surgery. Hæmaturia due to focal causes was treated by discovery and elimination of the focus by bacteriology and surgery. Menorrhagia and metrorrhagia not due to gross pelvic disease also needed collaboration, between physician and gynæcologist. Streptococcal infections might cause alarming and fatal hæmorrhage. Transfusion was invaluable, but had the disadvantage of occasional reactions, despite every care in grouping. He quoted a fatal case of streptococcal infection of the tonsils with bleeding everywhere.

Prof. A. E. NAISH, speaking on hæmophilia, assumed that his hearers had read the recent paper[1] from Sheffield. That the injection of a minute quantity of any substance into the veins should be able to diminish hæmorrhage without producing intravascular clotting was so strange as to be incredible, yet it had been proved to be true. A leader in The Lancet of Nov. 21st had referred to the variations in temperature which might make a 28 per cent. difference in the estimation of clotting-time, but as the work had been done under stringent working conditions in a centrally heated building, this objection fell to the ground. Even if the error had been as great as 28 per cent. it would not have affected the validity of the argument. In hæmophilia, clot might be present amidst free bleeding and therefore a small tube, easily blocked by a few strands of fibrin, was a poor index of the individual's power to bleed. Even if all effect on the clinical condition could be disproved the effect on the clotting-time had to be taken into account. Twenty-four teeth had been successfully extracted from a hæmophilic in a few months, and local applications had been of the slightest. Hæmophilia fluctuated remarkably, and it might have been that all these extractions had coincided with good periods, but in fact they had not done so in Case 4. One patient had oozed blood from the puncture spots of old injections.

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[1] Timperley, W. A., Naish, A. E., and Clark, G. A.: THE LANCET, Nov. 14th, p. 1142.

The work, said Prof. Naish, had not reached a stage at which its theoretical basis could be adequately discussed. It had arisen from a study of the effect of ions on the water-binding power of colloid states, and on the physical state of proteins in solution. Egg-white had been chosen as an easily obtainable sterile source of protein. The potassium salts, especially bromides, increased the solubility of proteins quantitatively. This had been tried on blood, and the result had been a non-retractile gel which had no appearance of fibrin microscopically and which became liquid again on vigorous shaking. The two things necessary to stop bleeding had therefore appeared to be fibrin and a gel. Substance No. 1 in the paper was an ovomucoid protein, as found in ovarian cysts and egg-white. It had been injected into all sorts and kinds of patients without producing protein shock. Substance No. 2 had been sought in an attempt to eliminate the protein factor; it did not give the biuret reaction and was not a phospholipide. No. 3 was a mucic acid derivative.

The President added a last chapter to the clinical history of one of the cases reported. The patient had had injections at ten-day intervals regularly. During November he had had an acute attack of pain in the hip. The preparation had appeared to act as a truly curative substance.

Dr. J. D. Cambrook spoke of dental extractions under the influence of snake venom : only two patients so treated had required transfusion. The coagulation time could be reduced from half an hour to half a minute, and the venom could also be used as a local styptic. More recent preparations, however, had given inferior results, the cause of which was being sought. The results of the new injection treatment were extremely good. A tight bandage did not stop a hæmophilic from bleeding; he just went on bleeding into his tissues.

Dr. George Graham asked whether any other change in the blood had been found in those patients who oozed from their punctures, for this was very unusual. He confirmed the value of snake venom. He asked whether splenectomy would have been of value in Dr. Davidson's fatal case and whether the platelet count and bleeding time had been recorded.—Prof. Naish said there had been bleeding from punctures in one case only.

STERILISATION OF SURGICAL DRESSINGS BY HEAT

In this country the sterilisation of dressings for surgical use is most often performed in an autoclave of the vacuum type. The heat generated in the materials is mainly produced by condensation of steam on the fibres with liberation of its specific heat of evaporation, so that it is of the first importance to know that any particular form of packing used does not prevent steam penetrating throughout the dressings. At the end of the period of sterilisation the steam is evacuated, the condensed water is rapidly evaporated by the creation of a partial vacuum, and the dressings are then dried by an influx of hot air. In any investigation of the efficiency of the process it is clearly not enough to register the maximum temperature attained in the autoclave; the time factor and the whole cycle of operation must be considered. The possibility of dry sterilisation has been more or less discountenanced in this country, although it is used to some extent on the Continent.

R. Maxwell Savage [1] has recently published the results of his investigation of heat penetration into surgical dressings. He decided that temperature records could be made complete only by using some form of thermocouple. In his experiments he has used copper-eureka thermocouples embedded in the centre of the dressing, which were placed as nearly as possible in the centre of the autoclave. He studied temperature changes in three of the types of dressing sent out by a commercial firm—viz., 6-yard rolls of gauze; field dressings consisting of gauze and bandage, measuring 2¼ in. × 3 in. × 1¼ in., wrapped in parchment, and very tightly packed; and an accouchement sheet consisting of a layer of cotton-wool covered with gauze weighing about a pound. In each case the temperature record was compared with that obtained from a second thermocouple embedded in an unwrapped dressing (or even lying on the surface of the dressing) in an exposed position near the wall of the autoclave. The maximum temperature was always reached first in the exposed thermocouple, but the difference was only a minute in the 6-yard rolls of gauze, two minutes in the field dressings, and ten minutes in the accouchement sheet. In all cases a temperature of 120°C. was maintained in the centre of the sealed package for at least 16 minutes, and this passes the required minimum by a substantial margin. The conclusion is that the efficiency of steam penetration and heating is not affected by tight packing, by the size of the packages, by their position in the steriliser, or by sealing and wrapping.

A cotton dressing consists of fibres and an atmosphere. From the temperatures and pressures recorded during sterilisation, Savage concludes that some superheating of the steam in the atmosphere occurs, but that the fibres themselves retain a coating of moisture to the end of the sterilising period. This is important, because it is believed that superheated steam has not the same sterilising power as saturated steam. Admission of air is considered to interfere with steam sterilisation, hence the preliminary partial vacuum produced before the admission of the steam. Savage has conducted a series of experiments with dry oven sterilisation, the results of which suggest that the hygroscopic moisture, contained in the outer layers of the dressing, by its evaporation is enough to displace all air in a closed package that is not hermetically sealed. Heating of the centre of the package is then at least partially effected by condensation of this steam. The atmosphere of the cotton probably does not consist of air but of superheated steam. Savage has also demonstrated that bacteria are killed under the conditions obtainable. He concludes that in cotton packages steam penetrates almost instantly even when the packages are wrapped and sealed, and that efficient dry sterilisation in an electric oven is a practical possibility.

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[1] Quart. Jour. Pharm. and Pharmacol., 1936, ix., 366.

REVIEWS AND NOTICES OF BOOKS

The Practice of Medicine

By JONATHAN CAMPBELL MEAKINS, Professor of Medicine and Director of the Department of Medicine, McGill University. London: Henry Kimpton. 1936. Pp. 1343. 42*s.*

THIS book is written in a new and refreshing style, in which symptomatology and the underlying disturbances of function are given priority over disturbances of anatomical structure. The worth of the method can easily be tested in the section on diseases of the lungs; the description of emphysema, for example, goes into all aspects of the pathological physiology of the disease. Prof. Meakins points out how the absolute diagnosis by means of spirometer tracings gives not only a qualitative, but also a quantitative estimate of the degree of loss of elasticity. This stands out in contrast to the dull anatomical approach of the average text-book, and is a joy to read. The same remark applies to sections such as dyspnœa, cyanosis, functional respiratory disorders, and congestive heart failure. There are chapters dealing with diseases of nutrition, metabolism and the ductless glands, and diseases due to chemicals, drugs, and allergy. Emphasis is placed in the introduction upon proper history taking and the correct approach to the patient, and the author expresses a hope that his work will be a real guide to the practice of medicine and not merely a description of individual diseases. That the book is up to date is seen in such sections as agranulocytosis, regional ileitis, and basophilism, but some liberty has been taken with the names of authors of medical classics. For example, Henoch's purpura is renamed Hanot's purpura, Gee's disease becomes Guy's disease, and Simmonds is called Simmond.

The type is clear with bold subheadings, a bibliography is appended to each chapter, and the index is excellent. The illustrations comprise 35 in colour and 370 in black and white, many of the latter being X ray prints. They are excellent but the choice strikes us at times as a little odd—e.g., the man with traumatic asphyxia and another with a congenital aneurysm of the external ear. Foot-and-mouth disease has two coloured plates, one showing vesicles on the lip and the other lesions on the dorsum of the hand, although authentic cases in man are very rare indeed. A case with such lesions on the hands can hardly be accepted without experimental evidence confirming the diagnosis; direct infections in laboratory workers, as in guinea-pigs, have led to skin lesions confined to the palms and soles. The illustration of a man with congestive heart failure, jaundiced over the thorax and head above the line of œdema, is a record of exceptional experience which carries with it a risk that his readers may see clinical medicine in a false perspective. The risk is enhanced by a certain unfair discrimination in the choice of subjects. Myelomatosis is probably ten times more common than osteopetrosis or lipoid granulomatosis, yet the latter diseases have detailed descriptions with ten illustrations, whereas myelomatosis is *not* even described.

We feel sure this book will be in great demand, and that it will be more useful amongst those already well acquainted with clinical medicine than amongst beginners. Prof. Meakins, as pioneer of the enlightened method which tackles symptoms and signs from the point of view of the disturbances of function they indicate, has taken a big step in the right direction.

Short History of Tuberculosis

By G. NORMAN MEACHEN, M.D., M.R.C.P., Tuberculosis Officer, Southend-on-Sea. London: John Bale, Sons and Danielsson Ltd. 1936. Pp. 105. 3*s.* 6*d.*

THIS book contains in concise form an outline of the development of our knowledge about tuberculosis from the earliest to the most modern times. After a survey of ancient and medieval history the evolution of medical treatment is described, due credit being given to the pioneer work of Bodington whose views on open air were set out at the time in these columns (THE LANCET, 1839-40, ii., 575) although regarded as "very crude ideas and unsupported statements." Following chapters deal with bacteriology, pathological anatomy, physical signs, collapse therapy, and finally the evolution of the control of tuberculosis and the progress of education and research. Under each subject the writer briefly reviews its historical development, ending with the most widely accepted present-day theories.

Although a vast amount of fact has been condensed into a small space, Dr. Meachen has succeeded in making his book both readable and interesting, not only for the medical profession, but for others who are interested in the problem of tuberculosis.

The True Nature of Viruses

By W. M. CROFTON, M.D., Director of the Antigen Laboratory; late Lecturer in Special Pathology, University College, Dublin. London: John Bale, Sons and Danielsson Ltd. 1936. Pp. 139. 15*s.*

THIS monograph presents Dr. Crofton's views on the nature of filtrable viruses. He finds himself at variance with those who have made a study of viruses and showers abuse on them for their orthodox views. To tilt at orthodoxy is often to perform a useful service, but the weapons used by the author are so unsubstantial as to deprive the book of even this value.

A Textbook of General Surgery

By WARREN H. COLE, M.D., F.A.C.S., Professor of Surgery, University of Illinois College of Medicine; and ROBERT ELMAN, M.D., Associate Professor of Surgery, Washington University. London: D. Appleton Century Company. 1936. Pp. 1031. 40*s.*

A Textbook of Surgery

Fourth edition. By JOHN HOMANS, M.D., Clinical Professor of Surgery, Harvard Medical School. Springfield, Illinois: Charles C. Thomas. 1936. Pp. 1267. 88.

(1) THE task of writing a text-book of surgery in one volume for present-day students is no easy one. Cole and Elman have fairly faced the problems in their new book, which is the outgrowth of a course of lectures given to junior students in the Washington University. An effort has been made to present rather more information about those matters with which every general practitioner should be familiar. But we have found, on perusal, the whole surgical field to be covered sufficiently for the student not to remain completely *ignorant about any subject.* The book has been written from a modern standpoint and in this respect has the advantage over an older book which has been revised. The freshness of outlook is very attractive. Another commendable feature

in an undergraduate text-book is the inclusion of a limited bibliography, so that the truly interested students can enter more deeply into their subject. A foreword has been written by Evarts Graham, who has contributed an excellent section on surgical diseases of the chest. An original feature is the description, under each illustration, of the clinical course of the diseases of the patients depicted. The book is convenient in size, well printed and illustrated. It can be recommended both to students and practitioners as reflecting modern views and trends in surgery.

(2) The second work noticed is the fourth edition of one which has been favourably reviewed in these columns. It was based upon the teaching of about twenty-five lecturers in the Harvard Medical School, integrated into one whole by a single author who has not shrunk from editing freely the material with which he was supplied. The book has been fully revised and sections added on plastic surgery and amputations. It is more comprehensive than the other volume just reviewed in its inclusion of the surgery of the ear and eye, and other specialties. It is another successful solution of the problem of a single-volume surgical text-book, and in its revised form is likely to be as popular as its predecessors. The line drawings with which it is illustrated form a pleasing feature.

Both books are good examples of the best in American surgical literature. It would be easy to criticise details but omissions and inclusions have received the attention of authors and compilers; taken as a whole, it may be said that excellent judgment has been exercised in the selection and compilation of such material as the undergraduate student needs.

Diagnostic Roentgenology

By Ross Golden, M.D., Editor, Professor of Radiology, the College of Physicians and Surgeons, Columbia University; Director of the Department of Radiology, Presbyterian Hospital, New York. London: Thomas Nelson and Sons. 1936. Pp. 867. $20.

Fifteen radiologists have coöperated in the production of this book. Such multiplicity of authors frequently results in omission and needless repetition but under the careful editorship of Dr. Golden these pitfalls have been avoided and the various sections are well coördinated. By selecting from the combined departments the authors have obtained a far better selection of films than would have been available to any one of them. So enormous has the science of radiology become that even in a book of this size the authors have found it necessary to refer the reader to special works; an adequate bibliography at the end of each section facilitates such reference. While each disease is briefly considered, the absence of verbosity has enabled the authors to pack a large amount of information into the allotted space. In the main, typical examples are described and the accompanying illustrations are well chosen. Photographs of the patient and pathological specimens serve to dispel any doubt the reader may have in accepting information not previously familiar to him. X ray photographs taken after an interval have similarly been used to render the statements convincing, affording as they do evidence that clinicians and pathologists have consulted together and that the diagnoses do not rest on mere speculation.

The book is on the loose-leaf system so that it can be kept up to date. The information supplied and the method of its presentation render it one of the best books yet published on diagnostic radiology. It will be appreciated alike by clinicians and radiologists.

St. Bartholomew's Hospital Reports

Vol. LXIX. London: John Murray. 1936. Pp. 413. 21*s*.

The current number of these reports maintains the high standard of the recent numbers of the series. Obituary notices of Garrod, Herringham, Holmes Spicer, and Canti appear at the beginning of the volume, together with bibliographies of their writings. Girling Ball has contributed a narrative of the events which led up to the location of the medical college on the Charterhouse site. In a paper illustrated by excellent plates E. R. Cullinan presents a series of cases of recurrent idiopathic jaundice associated with subacute necrosis of the liver, but the discussion of their ætiology might with advantage have been expanded. R. Bodley Scott and A. H. Robb-Smith review the progressive hyperplasias of the reticulo-endothelial system, quoting illustrative cases, and append an excellent bibliography. Shorter papers follow from A. W. Franklin on non-tuberculous fibrosis of the lungs in children, R. T. Payne on the post-mortem findings after partial gastrectomy, H. J. Seddon on arthrodesis for tuberculosis of the hip in children, V. C. Thompson on the treatment of tuberculous cervical lymphadenitis, G. Simon on the gastro-duodenal mucosal pattern with graduated compression, and R. W. Raven on the results obtained in the treatment of perforated gastric and duodenal ulcers. W. G. Oakley's study of the erythrocyte sedimentation-rate in nephritis embodies a large amount of original work, and W. Warren deals with auricular flutter during the treatment of auricular fibrillation with quinidine. W. M. Levitt and R. F. Phillips record an investigation of the results of deep X ray therapy in malignant disease during the past twelve years; they formulate certain conclusions and predict a hopeful future for radiotherapy. The volume is well printed and illustrated.

REPORTS AND ANALYSES

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THE LANCET

LONDON: SATURDAY, DECEMBER 12, 1936

UNITY AMONG HOSPITALS

It is now six years or so since the poor-law hospitals gained popular respect by transference to the care of the public health authorities. The effect on their character has been excellent, and everywhere there are signs of success in raising their standards. But the process of "changing" the more backward servants of the community does not in itself ensure that the domestic arrangements as a whole are sound. If the rescued poor-law institution insists on doing the same jobs as the long-established voluntary hospital there will be times when neither is working to capacity, while important work remains undone. Recognising the need for planning the household tasks comprehensively, the Local Government Act of 1929 said that health authorities finding fresh work for their new protégés must consult a committee representing the voluntary hospitals of the area and their medical staffs. No obligation was placed on the old servants (the voluntary hospitals) to consult the new ones before planning their own activities, but the Minister of Health hoped that the procedure outlined would lead on to wider arrangements for the fullest consultation between the local authorities and the medical profession. He wanted the kind of coöperation that would prevent overlapping and allow the hospital services of each area, voluntary and municipal, to provide between them all that the public needs.

The hope thus expressed has been realised more fully in Manchester than anywhere else—partly no doubt because the poor-law hospitals there were always wisely and humanely administered. In Manchester negotiation between representative committees has been abandoned in favour of something much more effective—namely, a Joint Hospitals Advisory Board—and its first annual report[1] shows the sort of action that may be expected when collaboration between hospitals turns from theory into fact. By constitution the Board derives ten members, together with the medical officer of health, Dr. R. VEITCH CLARK, from the city council; while eight represent the voluntary hospitals' council, and five, including the chairman, Sir CHRISTOPHER NEEDHAM, are sent by the University. Though it is advisory in function the constituent bodies have agreed in general to accept its findings, on the understanding that hospitals affected by its proposals are invited to attend its meetings and make known their opinions. Its object is to unify the whole of the hospital services within the city, and it is concerned not only with development of hospital work and accommodation but also with the training of medical students, the prosecution of research, and the principles that underlie the appointment of medical and surgical staffs. Unification, it is insisted, must and can be attained without destroying the spirit of enterprise, in individuals and in single hospitals, that has been so conspicuous in voluntary hospital practice; and it is noteworthy that in the Manchester municipal hospital service the disadvantages of central control are already countered to some extent by throwing responsibility upon committees that serve only two or three institutions.

In its first year the Manchester Joint Hospitals Board has begun to tackle the reduction of waiting-lists and has worked on such various problems as the price of milk to hospitals, precautions against air raids, and the treatment of fractures. From the point of view of the medical profession, however, its most significant actions have been those relating to the selection of consultants. In Manchester, as in some other cities, the municipal hospitals are now visited often enough to ensure that visiting physicians and surgeons are actually responsible for the diagnosis and treatment of all patients who are acutely ill. At other times of the day many of these part-time paid consultants are members of the staffs of voluntary hospitals; so that a large part of the personnel of the two kinds of hospitals is common to both. One advantage of this is that patients can sometimes be exchanged from one hospital to another, with continuity of care. More important, however, is the possibility that the principles governing selection of consultants may become the same for voluntary and municipal hospitals. One of the wise steps taken by the Joint Board has been to set up an independent advisory panel that will in future consider all applications for vacancies in the consultant service of the city and forward its recommendations to the public health committee. The suggestion is now made that this advisory panel should in future give similar assistance in the filling of appointments to the voluntary as well as the municipal hospitals. Once given a start the process of rationalisation sometimes goes ahead remarkably fast.

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[1] Obtainable, free of charge, from the joint hon. secretaries of the Board, at the Town Hall, Manchester, 2.

PROFUSELY BLEEDING PEPTIC ULCERS

In one section of a recent oration[1] to the Reading Pathological Society, Prof. J. A. RYLE returned to the problem of the treatment of acutely bleeding peptic ulcer. In the last few years widely varying estimates of the mortality of this condition have been published—anything from 1 per cent. to 25 per cent.—and those who have reported the larger figures have often wondered whether more radical methods of treatment, applied in appropriate cases, might not effect a net saving of life.

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[1] Brit. Med. Jour., Nov. 28th, 1936, p. 1067.

The discussion[2] at the annual session of the American Medical Association last May is the latest example of growing dissatisfaction with present results. Prof. Ryle, however, leans strongly to conservative treatment, and bases his leaning largely on the low mortality which he has encountered in his own private practice (1·6 to 3 per cent.), supported by the verdict of a number of general practitioners circularised by Dr. A. F. Hurst, and by figures of 5 per cent. or less reported in five out of sixteen hospital series which he quotes. Of those sixteen series the over-all mortality is well over 10 per cent., and Prof. Ryle is saying, in effect, to most of those hospitals: "Your mortality is regrettably high, but you need no radical methods to reduce it, for other people with the old conservative ones have done much better than you."

It is a difficult medicine to swallow, especially when the surgeons, in the persons of Finsterer[3] and Gordon-Taylor,[4] have just lifted their voices again in favour of early operation for bleeding ulcer—the application of the primary surgical principle of tying the bleeding vessel. Finsterer claims a 5 per cent. mortality in 59 cases operated on within 48 hours, but it seems widely agreed that Finsterer's technical skill is exceptional. Gordon-Taylor sees the dangers of operation in partly exsanguinated patients charmed away by the magic of the drip transfusion method. It has yet to be decided, however, just how much difference the drip transfusion makes. There is no question that a dramatic change from pallid shock to red-faced well-being is produced in 48 hours by the introduction of several litres of blood, but no record has yet appeared of a large series of patients so transfused and subjected to radical gastric operations; it can scarcely be hoped that their mortality will fall much below 5 per cent., and the transfusion itself may not be entirely without danger. We would agree, therefore, with Prof. Ryle's protest against the wide adoption of surgical methods at the present stage.

At the same time the combination of operation with massive transfusion is such an improvement on operation alone or operation with a small transfusion, that it becomes more urgent than ever for the physician to learn to recognise the patients who, if they are medically treated, are likely to die. "A more careful study of prognosis is clearly necessary," and more necessary perhaps in the hospital patients than in the private ones. We wonder whether, in our hospital wards as a whole, the patient with an acutely bleeding peptic ulcer excites quite so much interest and attention, receives quite such close observation and careful nursing as, for example, the pregnant woman with signs of pre-eclamptic toxæmia. Every such case is a major problem, or may become one at any moment. Prof. Ryle's low mortality figures are meant not as a soothing but as a stimulating example.

GEOGRAPHICAL DISTRIBUTION OF CANCER

One of the most striking contributions to the annual report of the British Empire Cancer Campaign for 1936[1] is a study of the regional distribution of cancer mortality in England and Wales, which has been carried out by Dr. Percy Stocks, medical statistical officer at the General Register Office. The full analysis relates to 522,251 deaths attributed to cancer in the decade 1921–30, a period when the accuracy of diagnosis and certification was undoubtedly much higher than in the earlier years of the century, and was also—an important point—becoming more uniform throughout the country. In the present report the study is limited to cancer of the œsophagus, stomach, intestines, rectum, liver, gall-bladder and pancreas, skin, lung, and breast, but similar data for other organs are being analysed. The distribution of mortality from cancer of these sites is shown both in maps and tables.

In comparing the recorded incidence of cancer in different areas three factors have to be taken into account—viz., the age- and sex-distribution of the populations at risk, and the proportions of the populations living in urban and rural areas. This is clearly necessary, for the risk of dying from cancer increases with age, differs for different sites between the sexes, and is usually higher in the urban areas than in the rural. A valid comparison between one area and another must therefore allow for demographic differences of these types; for example, it is useless to compare the crude death-rate of Norfolk, where 10·3 per cent. of the population are more than 65 years of age, with that of the West Riding, where only 6·6 per cent. are over this age. Stocks's method has been to take the death-rates according to each site, for each age-group, for each sex, and for each group of administrative areas (county boroughs, other urban districts, and rural districts) in England and Wales as a whole, to apply these rates to the corresponding populations in each county, and thus to reach the deaths that would have been registered in each county if the experience of each of its sub-groups had been the same as in the corresponding sub-group in the country as a whole. These expected deaths he compares with the number actually recorded, expressing the latter as a percentage of the former, and testing whether the differences observed are more than are likely to be due to the play of chance. The effect of this standardisation is to reveal wide and very interesting differences. For instance cancer of the stomach shows two definite regions of high mortality, one extending from Wales to the north-west and extreme north of England, the other near to the Wash. The excess in some of the westerly counties of Wales is especially conspicuous, the worst example being Carnarvon where the recorded deaths both for males and females are just over double the expected numbers. Nearly every county in Wales gives ratios that are consistently and significantly high. On the other hand these counties with high rates for the stomach show on the whole low rates for cancer of the œsophagus, though this inverse correlation is not apparent in the great towns. The high rate of gastric cancer in most of Wales is present at ages 25–65 as well as at the older ages where errors in diagnosis might well be a factor, and this leads STOCKS to conclude that the excess cannot be explained by peculiarities in death certification; while if it is regarded as a racial phenomenon the high rates in the adjoining counties of north-west England will still require a different explanation. He suggests that dietary habits may conceivably be involved or some indirect and at present obscure effects of the high rainfall in those areas; but the latter would hardly fit the second area of high mortality—namely, the Isle of Ely, the Holland division of Lincoln, and the Soke of Peterborough. Cancer of the intestines shows much less local variation than either cancer of the œsophagus or stomach, and bears no obvious relation to either. Cancer of the rectum and anus, which produces a mortality almost twice as great in males as in females, has a more definite regional distribution (the present study deals with males only). At ages over 65 its location is very similar to that of cancer of the œsophagus, the south-east quadrant of England being characterised by high mortality in each instance, so that there may be local factors common to these two forms.

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[2] See Goldman, L.: Jour. Amer. Med. Assoc., Nov. 7th, 1936, p. 1537.

[3] The Lancet, August 8th, 1936, p. 303.

[4] Ibid., 1935, ii., 811.

[1] The Report was reviewed in The Lancet of Nov. 28th, p. 1294.

Skin cancer shows very high ratios in the Holland division of Lincoln, Lancashire, Cornwall, Northumberland, Cardigan, Flint, and probably Anglesey, and significantly high figures are also found for Durham, the East and West Ridings, East Suffolk, and Monmouth. London, the Home Counties, and Carnarvon have remarkably low mortalities from this form of cancer. The explanation of this distribution will probably be found, STOCKS thinks, mainly in the distribution of industry, and he notes that most of the mining areas appear to have ratios above the average. The rapid increase in deaths attributed to cancer of the lung makes this site one of particular interest. The registered mortality clearly rises with urbanisation, but it is impossible to determine how far this is due to better facilities for diagnosis. From his detailed analysis STOCKS believes that the local distribution must be greatly influenced by lack of uniformity in diagnosis, but that it would be difficult to explain some of the contrasts noted only on those grounds. Cancer of the breast is relatively high in the urban areas, low in Wales and the north of England. Its local variation though less than that found for other sites is sufficient to require an explanation.

THE HUMAN FACTOR IN INDUSTRY

THE National Institute of Industrial Psychology was founded in 1921 as a voluntary organisation with the object of studying the human factor throughout occupational life and of spreading a knowledge of the practical results of such studies. Its first president was the late Earl of BALFOUR, succeeded in turn by Viscount D'ABERNON, Lord MACMILLAN, and the Earl of DUDLEY, who now occupies that position; vice-presidents of the Institute have been four chief officers of the Royal Society, Sir WILLIAM BRAGG and his three predecessors; Dr. C. S. MYERS, F.R.S., and Dr. G. H. MILES have served the Institute as principal and director since its foundation. The sixteenth annual report just issued [1] tells us that during the past year investigations have been carried out for 33 firms or companies, representing 23 different industries, while 1087 persons, three-quarters of whom were males, have received vocational or educational guidance. The Institute is not a profit-making concern. The subscriptions of its 1700 members and associates cover roughly the cost of the publications they receive, and out of an annual expenditure of £28,000 only about £21,000 is received back from concerns and individuals for services rendered, leaving uncovered an outgoing of about £7000 a year which has in the past largely been met by grants from Carnegie and Rockefeller funds, but more recently from the Balfour Memorial Fund which is now nearly exhausted. The Institute is recognised by London University for courses in industrial psychology, it has been widely consulted by education authorities at home and abroad, and it has in the past initiated a large amount of research work, including the scoring of intelligence tests, rhythm in motor activities, vocational guidance experiments, and the effect of alcohol on motor-drivers, all of which have led to results of practical value. The Institute is unique in its aims and work; no country possesses anything quite comparable, free as it is from State control and concerned primarily with the psychological and relevant physiological factors in the manifold aspects of occupational life. It is we fear a fact that without new sources of financial support the work of the Institute in its national and educational aspects is likely to be severely crippled, and in commending its work to the widest possible circle we need only recall the remark of ELTON MAYO that "the worker's attitude towards his work and towards his supervisor is more important than any other single factor in production," and that the Institute has shown remarkable insight and initiative in its work on this problem.

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[1] The Human Factor. Annual Report Number. December, 1936.

LAMBETH HOSPITAL.—To-day, Friday, Dec. 11th, at 3 P.M., Lord Horder is opening the new nurses' home at Lambeth Hospital. This is the largest general hospital under the control of the London County Council, and during the quarter ending Sept. 30th it had a daily average of 1064 in-patients. The new home, which is part of a scheme of modernisation, has cost nearly £59,000. It is a six-storey building and will have room for 206 members of the nursing staff. Each bedroom is fitted with a lavatory basin with hot and cold water, and a built-in wardrobe cupboard. For certain of the senior nurses a small sitting-room is provided adjoining the bedroom. Large separate sitting-rooms are also provided which can be thrown together by means of sliding doors for special occasions. The training school, containing a lecture theatre, demonstration room, and library, is at the eastern end of the building. On the upper floors are self-contained flats for the matron and the assistant medical superintendent. On the flat roof over part of the building there is provision for sun-bathing and physical exercises.

ANNOTATIONS

WHAT IS WRONG WITH MILK DISTRIBUTION ?

MILK marketing boards are of recent creation, they have done excellent work, and their full utility cannot yet be assessed. All this is granted by the Milk Reorganisation Commission, but it is evident from its report[1] that the Commission is far from satisfied with many of the existing arrangements. Producers, apart from those in specially favoured markets, have received more for their milk, and the larger distributors have also benefited financially. But so far as consumers are concerned, the principal effect of the schemes, we are told, has been to raise retail prices throughout most of the country. This has arisen in two ways: in the first place through the higher wholesale prices which distributors have had to pay; and secondly through the fixing of minimum retail prices. More milk is produced, but the natural fall in its cost to the public has been prevented by the monopoly of the producers and their power to fix prices. This increased price has seriously limited consumption, and that despite the great improvement in the purchasing power of the public. Apart from cheap subsidised milk, the Commission can only point to a very slight rise in consumption. Rural consumers have suffered more even than urban consumers; as a rule they have to pay the full urban price for the milk produced at their very doors. It may be difficult or even impossible to obtain milk in the country at all because of reluctance on the part of the producer to take out a retailer's licence. Consider all that has been done to push milk as a staple article of diet: the efforts to stimulate consumption through the State subsidy, the milk in schools scheme, the stress on the nutritional value of milk, the propaganda of the National Milk Publicity Council. The Commission has to admit that the results, apart from directly subsidised milk, have been meagre. Dealing with figures not later than 1935, there was a very modest increase in the production of graded milks of improved quality.

What then does the Commission propose? The report contains certain definite administrative proposals. Its chief recommendation is the setting-up of a permanent milk commission of five members, each to serve for 5 years and to be eligible for re-election, appointed jointly by the Minister of Agriculture and the Secretary of State for Scotland. As the central authority for the industry it would advise the Government on questions of milk policy. Its task would be to develop the industry, to fix the prices to be paid to milk producers on the one hand and to the milk boards by the buyers on the other, and to control and supervise any State milk subsidy. The Commission frankly dislikes the present system under which producers' boards determine the buying price of milk by pooling the receipts from sales and dividing the total among producers according to their gallonage. The new permanent commissioners should fix prices at a level designed to secure the production of whatever volume of milk is required. This volume depends on the "normal" demand for liquid milk, on the provision of milk to assisted classes of consumers, on the extent of the subsidy to manufacturers. The price payable to producers should be sufficient to secure production, and will necessarily vary somewhat owing to local conditions and needs. The subsidy suggested is in the neighbourhood of an additional £3¾ million. At present the manufacture of milk products is conducted on an uneconomic basis, in the sense that the prices obtainable for the final product are insufficient to enable manufacturers to buy milk at a price which will cover the cost of its production. The balance is made up out of the price paid for milk used for consumption as a liquid. Put another way, consumers of the present high-priced liquid milk can obtain some consolation from the uneconomic price they pay for butter and cheese. The Commission would like the subsidy to be large enough to enable liquid milk prices to be relieved from their part payment for the manufactured article. The wholesale price of liquid milk could then be lowered and the retail price would fall. The subsidy could also be used to enable milk to be sold to selected classes of consumers at reduced prices. The wholesale price of liquid milk—i.e., the price paid by the distributor—should be fixed at such a level that the income from its sale, plus the income from the sale of manufacturing milk plus the grants in respect of manufacturing milk and of "assisted price" milk, will be sufficient to meet the payments due to producers. The Commission considers that improvements of method are possible both in production and in distribution, but does not elaborate its proposals under this head.

The report is mainly concerned with milk as a commercial product. It was not within the Commission's terms of reference to consider the public health aspect, but it is disappointing that the Commission fails to realise how intimately the safety of milk as a food is bound up with its increased production and use. Troubled as it is by the inadequate amount of milk drunk the Commission does not correlate this with the present want of confidence in its quality and safety. It visualises "accredited milk," a type regarded generally by the medical profession as unsafe, as the highest type available; it regards milk from tuberculin-tested cows as a pious hope for the future, and has nothing whatever to say about pasteurised milk. It is true that in an addendum to the report Sir John Orr, one of the commissioners, does lay more stress on this point, but the commissioners as a whole have not grasped, what every commercial advertiser knows, that you cannot push the sale of any article when there is grave doubt as to its safety. Whatever methods are adopted for marketing milk the position will remain unsatisfactory until a safe milk-supply is provided.

THE SURGICAL SIDE OF EPILEPSY

"THERE is only one physiological cause for epilepsy," writes Penfield,[1] "but there are many pathological causes. It is for the physician to search out the pathological cause and to treat each patient with discrimination. There is no panacea, no universal remedy." The physiological cause remains undiscovered, but great strides have been made during the last decade in correlating epilepsy with demonstrable intracranial lesions. Owing to his great interest in the subject, from the standpoint both of histology and therapeutics, Penfield has attracted much clinical material to his clinic at Montreal, and he is now able to give a critical review of the indications for and value of surgical intervention. He points out that careful preliminary study of each case is essential before any conclusion can be reached about the correct mode of treatment. Importance is rightly attached to the pattern of the attack, and if the history from the patient and witnesses is inadequate, then an attempt should be made to induce a typical fit while under observation in hospital. Every nurse should be trained to appreciate, and immediately register in writing, the precise course of events during a convulsion. Neurological examination, except in cases resulting from gross brain injury or tumour, often gives scant localising aid, and encephalography is almost always essential. This may demonstrate local cortical atrophy, or gross distortion of the ventricle, for scar tissue may cause a traction diverticulum. A tumour will be recognised by typical displacement of the ventricular system. Where craniotomy has been decided upon, then electrical stimulation of the exposed cortex will aid the surgeon both in locating the epileptogenic area and in indicating the limits of the Rolandic gyrus.

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[1] R [illegible] Commission for Great Britain. Minist [illegible] No. 44. H.M. [illegible]

[1] Penfield, W.: Arch. Neurol. and Psychiat., 1936, xxxvi., 449.

It is usually held that in a large proportion of cases of epilepsy no pathological cause is recognisable. This idea has lately been challenged by Bateman,[2] who claims to have detected organic abnormalities in the brains of 140 out of 142 cases diagnosed as idiopathic epilepsy. Bateman makes a significant distinction between the disease as it arises before and after puberty; before puberty, he says, it is nearly always associated with imperfect development of the frontal lobe, whereas after puberty it may be attributable to a variety of lesions, including abnormalities in the ventricles, meninges, pacchionian bodies, and blood-vessels. Walker,[3] who has studied 100 patients with major epilepsy beginning in adult life, is able to point to a similar variety: he found neurosyphilis in 15, hypertension (over 150 mm. Hg systolic) and arterio-sclerosis in 14, effects of trauma in 4, and tumour of the brain in 16. His series bears out the statement that, where epilepsy begins in adult life, a cerebral tumour is most often found to be the cause. In this connexion it is interesting to compare the incidence of epileptiform seizures in a series of supratentorial tumours from the Montreal clinic (71 per cent.) with that of other clinics; Sargent reported an incidence of 30 per cent. As Penfield says, this may be due to the attraction to the centre of a preponderating number with a history of convulsive seizures. It is surprising to learn that the incidence of fits in cases of meningioma—essentially a cortical tumour—was 71 per cent., and of astrocytoma, 84 per cent. Unfortunately the assumption, that if a tumour giving rise to epilepsy is removed then the fits do not recur, is unjustified, and it may be responsible for grave disappointment to the patient and relatives. Where the tumour removed was a meningioma, the seizures ceased in 42 per cent. of the survivors, but the corresponding figure for astrocytoma was only 13 per cent. Several interesting cases are reported in which epilepsy was deemed secondary to a subdural collection of fluid. The cause of this exudation is not clear, but drainage of the fluid appeared beneficial.

Perhaps the chief interest in Penfield's paper lies in his summary of results of operation for post-traumatic epilepsy. After compound fracture of the skull, a dense scar may bind brain and dura together, often with considerable distortion of the neighbouring wall of the ventricle. Closed injuries may result in local cortical atrophy, and a healing of cerebral abscess may also bring about the formation of a meningocerebral cicatrix responsible for epilepsy. Total excision of the scarred areas resulted in cure in 46 per cent. of cases, with an operative mortality of only 2·6 per cent. Moreover, such an operation, when performed by an expert, leaves no serious physical disability. On the other hand, former sufferers must always be considered potentially epileptic. "Cure," in this sense, implies freedom from attacks to date, up to periods of seven years.

JAUNDICE AND LIVER NECROSIS

In the last volume of the *Reports* of St. Bartholomew's Hospital Dr. E. R. Cullinan gives an interesting and well-illustrated account of 20 cases of apparently causeless jaundice in which after death the liver was found to be largely fibrosed with scattered nodules of hyperplastic liver cells. He calls the condition, and such is its usual name, "subacute necrosis"; but the terminology is unfortunate for while "necrosis" refers to the pathological change, "subacute" describes the clinical course of those cases where the original necrosis, no doubt always acute, does not involve so much liver substance that the patient dies in a few days with "acute yellow atrophy." The main and characteristic symptom is jaundice, often recurrent, associated with vague illness and gastric disturbance. The jaundice is very variable however in its time relations: it was the initial symptom in about half the author's cases, while in two it appeared only shortly before death; it may be transitory or it may last ten years, and it generally grows darker towards the end. Bile pigment and sometimes bile salts were present in the urine and in the early stages the stools were often clay coloured though they generally returned to normal later on. The liver was palpably enlarged in two-thirds of the cases and the spleen in about a third, and ascites often appeared a few weeks before death. The terminal symptoms of cholæmia came rather suddenly and lasted only two or three days. The variations in what seems to be a consistent clinical picture are well brought out in the case-histories which are given in fair detail. The final condition of the liver is also essentially uniform, though the distribution and details of the lesions are various enough to give a diversity of appearances. The organ is extensively fibrosed with scattered nodules of regenerated liver cells, and in nearly all the cases the author satisfied himself that further necrosis immediately preceded death. His interpretation of the process is that there is an attack of necrosis (with jaundice) which is essentially lobular in distribution. This is compensated for by regeneration of the surviving healthy cells, but it is not necessarily completely healed since the lobules tend to collapse and the growth of the regenerative nodules helps to disorganise the normal lobular arrangement. It may however be enough to carry the patient on in tolerable health if he is lucky enough not to have another attack. If he does, the new liver tissue is destroyed, it may be on a scale sufficient to cause death, or enough normal tissue may remain to allow further regeneration; and so on. Whether the final fatal issue is due to there being too few liver cells is a little uncertain: the regeneration nodules are out of place with regard to their blood-supplies and their bile-ducts, and the cumulative evidence is certainly to the effect that liver cells can function properly only if the normal architecture of the liver is preserved, for it is on this that the liver cells depend for their supplies of hepatic and portal blood and the anastomosis of the two at the periphery of the lobule as well as for their efferent ducts. It is likely that gross disturbances of the normal arrangements are in the end necessarily fatal, even though there are plenty of live liver cells left. The cause or causes of the whole sequence is, Dr. Cullinan confesses, quite obscure, and in his cases he could not implicate any of the poisons which are known to lead to liver necrosis. It is possible that the ordinary attack of "catarrhal jaundice" without sequelæ represents a mild manifestation of the same condition and there is certainly some evidence that this is associated with degenerative changes in the liver cells. Evidently what is wanting is an accurate knowledge of what is going on in the liver at the beginning, which is what pathologists so often need.

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[2] Bateman, F.: Ibid., p. 578; see THE LANCET, Nov. 7th, p. 1103.

[3] Walker, A. E.: Arch. Internal Med., 1936, lviii., 250.

EATING AND TASTING [1]

MANY of us eat without appreciation of what we eat; we may know what we like, but we less often know what is good for us; few people are well informed about their food, and some even think that to be so informed savours of greediness. Dr. Leipoldt's "Belly Book" is opportune at the present moment. In preliminary chapters dealing with the general principles of digestion and nutrition, with the physiology of taste, with the food requirements as determined by age and environment, and with the effects of fasting and overfeeding, he makes a comprehensive review of the most important facts concerning the physiology and pathology of nutrition. In succeeding chapters he writes with learning and imagination concerning the selection of food, the appreciation of food, the art of dining, and the virtues of the fine alcoholic drinks. Study of recent literature suggests that, from the nutritional point of view, the health of the public is threatened less than ever before by a shortage of essential raw materials, but suffers more by increasing ignorance as to the proper means of employing them, and often by the deliberate misuse of excellent primary material. Dr. Leipoldt's book might well serve as a nucleus of the growth of a revival in interest in the true and worthy enjoyment of food for its own sake.

ARCHITECTS AND ANÆSTHETISTS

A NUMBER of members of the Royal Institute of British Architects took part with the section of anæsthetists in the discussion last week on the ideal structure of an operating theatre opened by Mr. George Edwards at the Royal Society of Medicine. They were unanimous in welcoming a joint discussion, feeling that the hospital architect was apt to be insufficiently acquainted with medical needs, and, indeed, was scarcely aware of the anæsthetist at all. Mr. Edwards's desires were simple but comprehensive; he looked at the anæsthetic room, the theatre, and the rest of the hospital from the point of view of what is best for the patient who is just about to undergo operation or who has just undergone operation. For the latter he preferred a recovery room in close proximity to the theatre, but this preference was not shared by some who took part in the discussion. Mr. E. H. Rayner, Sc.D., superintendent of the electricity department of the National Physical Laboratory, spoke on the measures necessary for the avoidance of dangers from static spark, and showed how commonly electricity of this kind could be generated in the modern theatre and anæsthetic room. Air humidity of 65 per cent. was, he said, a source of safety. Sound absorbing walls came up for discussion, when the architects pointed out the difficulty of combining this requisite with surgical cleanliness. Otherwise it is only the restricted space, it seems, that prevents the architect from meeting the needs of the medical man. The colour scheme for theatres and for hospital interiors generally led to divergence of opinion, although the customary interior decoration was admitted to be depressing. Anæsthetists mentioned the dangers which arose from a wrong choice of colour for walls, gowns, and window blinds in theatre and anæsthetic room. Dr. H. Gainsborough deprecated elaborate installations of any kind since finality in judgment could not yet be reached and an expensive arrangement put in to-day might be superseded to-morrow. Simplicity and flexibility were the essential qualities; he would like medical men generally to make themselves more expert about hospital construction than they were at present. The president, Dr. Langton Hewer, told of the satisfaction which the pipe installation for gases in the new theatres had given at St. Bartholomew's Hospital.

EXOPHTHALMIC OPHTHALMOPLEGIA

Dr. Russell Brain [1] has lately put forward the view that the association of ophthalmoplegia with exophthalmos and thyrotoxicosis is a syndrome distinct from exophthalmic goitre, from which it differs in several important respects, notably in age- and sex-incidence and in the relative slightness of the general symptoms of thyrotoxicosis. In "exophthalmic ophthalmoplegia," as he has named it, the basal metabolic rate not uncommonly is normal, and this syndrome has been observed to develop and progress in a number of patients after subtotal thyroidectomy has rendered the basal metabolic rate subnormal. In the light of recent physiological studies Dr. Brain suggests that the ocular symptoms may be due to the action of the thyrotropic hormone of the pituitary and that even in exophthalmic goitre the exophthalmos may not be a symptom of the thyrotoxicosis. Observations by other workers lend some support to this view. Thomas and Woods [2] record 16 cases from the Johns Hopkins Hospital "which present progressively increasing exophthalmos even after thyroidectomy has brought about relief of all the other symptoms such as tachycardia, tremor, nervousness, and increased rate of metabolism." Ophthalmoplegia developed in 7 of these patients. The post-operative basal metabolic rate was normal in all but 3, 2 of whom had post-operative myxœdema with basal metabolic rates of -30 and -35 respectively, while the third had a basal metabolic rate of $+36$. Sections of the extra-ocular muscles from 3 patients showed histological changes similar to those which have previously been described—namely, infiltration with islands of round cells. The authors' most striking observation was made in one case in which, after enucleation of both eyes, the orbital contents continued to hypertrophy and finally bulged out between the eyelids. Thomas and Woods conclude that progressive exophthalmos can occur in the absence of clinical hyperthyroidism and that if the thyrotropic hormone is responsible it acts not on the smooth but on the striated muscles of the orbit.

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[1] The Belly Book or Diners' Guide. By C. Louis Leipoldt, F.R.C.S.Eng., D.Litt. London: Williams and Norgate Ltd. 1936. Pp. 298. *7s. 6d.*

[1] Brain, W. R.: Lond. Hosp. Gaz. (Clin. Supp.), 1936, xxxix., No. 6.

[2] Thomas, H. M., jun., and Woods, A. C.: Bull. Johns Hopkins Hosp., August, 1936, p. 99.

Mr. Stallard[3] has since reported a case of exophthalmic ophthalmoplegia with thyrotoxicosis which reacted in a striking manner to the thyrotropic hormone of the pituitary. The patient, a man of 31, presented the clinical picture described by Dr. Brain, with bilateral exophthalmos, more conspicuous on the left side than on the right, paresis of the left inferior rectus and inferior oblique muscles, and minimal general signs of thyrotoxicosis, the basal metabolic rate being −4. On three consecutive days 600 Organon units of thyrotropic hormone were injected. After each injection the basal metabolic rate rose, and it reached a maximum of +41 per cent. three days after the last injection. At the same time the exophthalmos increased a little, subsequently diminishing in the right eye; but three weeks later the left eye developed corneal ulceration and the exophthalmos progressively increased, necessitating excision of the globe. The extra-ocular muscles were found to be considerably enlarged and the inferior rectus showed the characteristic round-cell infiltration and fibrosis. In this case, therefore, the effect of the thyrotropic hormone was greatly to intensify the exophthalmos, and though at the same time it raised the basal metabolic rate the occurrence of a similar progressive exophthalmos in the presence of post-operative myxœdema seems to imply that hyperthyroidism played no part in this intensification. It is unlikely that human material will afford stronger evidence that the thyrotropic hormone is responsible for the exophthalmos and the ophthalmoplegia, though there are still obscurities in its mode of action. It seems probable, however, that the study of this rare syndrome will throw light upon the pathogenesis of exophthalmos and upon the nature of exophthalmic goitre.

THE MEDICAL DIRECTORY, 1937

For one reason or another the Medical Directory is one of the most closely read publications of the medical year. The directory for 1937 which reached us on Nov. 29th, 1936, has a particular claim to interest because for the first time within living memory the list of practitioners in the London section has practically ceased to grow. The increment is a mere 4 on last year's number, while for the last nine years it has been each year more than 100 a year. There has been no difference in the method of compilation, and the figures must be taken as very nearly statements of fact. It looks as though medicine has suddenly discovered the fact that the London of the postal area—for it is this London on which the directory list is based—has stopped growing. By a curious coincidence this section of the Medical Directory has been reset in type and format which makes it 54 pages shorter than the same section last year. The actual face of the type used is the same, and the extra room has been gained by diminishing the space between the lines (doing away with what printers call the beard), by broadening the column, and by diminishing the margin at top and bottom. This process of internal reorganisation began a year ago with the introductory part of the directory, and will doubtless extend year by year to the back cover. We think it will commend itself to readers, and there are many besides ourselves who hope that the space thus saved may lead to the reinsertion of the section of dental surgeons who have no directory of their own. The total increment of names in the 1937 list is 657, made up as follows. On the plus side: London, 4; provinces, 468; Wales, 17; Scotland, 2; abroad, 153; Services, 22. On the minus side: Ireland, 9. Those who do not find their names in the classified list should turn to the "late list" of names and changed addresses on pp. 2221–5. There are a few small but useful additions to the directory. The return of the list of medical Members of Parliament (p. xlvii.) is welcome and the new entry about the L.C.C. Laboratory Service (p. 406). In the table of contents, medical "periodicals" appear also under the heading "journals" in order that they shall not be missed. This is the 93rd annual issue, and may be had from Messrs. J. and A. Churchill (now of 104, Gloucester-place, London, W.1) at the price of 36*s*.

THE ATTACK ON THE ATOMIC NUCLEUS

At the conclusion of the annual conference of the British Institute of Radiology, of which some report is given on another page, the seventeenth Mackenzie Davidson memorial lecture was given by Mr. J. D. Cockcroft, Ph.D., of the Cavendish Laboratory, Cambridge. Dr. Cockcroft chose a subject in which he has himself played a prominent part, for although the way in which the nucleus of an atom holds together is still a secret he and his fellow workers have been instrumental in finding ways of blowing it to pieces. In a delightful discourse, disarming in the simplicity of treatment, he showed the swing of action during our period of radio-active knowledge in trying to make the nucleus give way to external forces. Radio-activity revealed atomic instability, for the most part a property of elements of high atomic weight and therefore of some complexity, though potassium with its feeble radio-activity was something of an exception. When Rutherford showed that oxygen could be formed from nitrogen by bombarding the latter with alpha particles, the first successful assault upon the nucleus from without had been made; but, when atoms with more closely guarded nuclei than nitrogen were similarly attacked, the attacks were warded off by the strong electric fields barring the way. The only way to get over this was to produce particles more highly energised than alpha rays. This has been achieved by speeding up protons and deuterons; when these electrified particles are showered upon atoms, they are able, by virtue of their enormous energy, to penetrate through the defences of elements of quite high atomic weight. This done, they disturb the equilibrium of the nucleus, often with consequent disruption of the atom, and an unstable type of atom persists—artificial radio-activity is, in fact, just as real a thing as the natural product.

Dr. Cockcroft reminded his audience that the chance of nuclear encounters is very small; he could see little probability of these artificial products becoming of such practical importance in medicine as are the naturally radio-active bodies, although they might be of great scientific use. He referred to the work of von Hevessy who has shown how to trace the distribution of phosphorus through the body by the mixture with it of minute traces of radio-active phosphorus; the detection of this by physical means is several million times as delicate as the ordinary gravimetric methods of the chemist. Medicine has therefore begun to benefit from these experimental feats of the physicists, whose aim is to reveal the nature of the nucleus and its surroundings. To some it may appear strange that the way towards this knowledge is to shatter the nucleus; perhaps a refinement in method will allow a gentler but no less sure approach.

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[3] Stallard, H. B.: Brit. Jour. Ophthalmol., November, 1936, p. 612.

SERUM TREATMENT OF SPORADIC MENINGOCOCCAL MENINGITIS

MENINGOCOCCAL meningitis in non-epidemic periods and areas is most often due to infection with strains of meningococci of the serological Group II. This group comprises the Types 2 and 4 of Gordon as well as other types, perhaps many, which possess serological relationship, but not complete identity, with Types 2 and 4 and with each other. In the basal meningitis of infants, which is the chief contributor to mortality from meningococcal meningitis in inter-epidemic periods, meningococci of Group II. are especially common. Serum therapy in infections with Group II. is often, and particularly in infants, much less successful than in infections with Group I., the usual cause of cerebro-spinal fever in epidemic form. It is possible that one reason, among others, for this is an inadequate amount of antibody for Group II. in the usual polyvalent anti-meningococcus therapeutic serum. The serum department of the Lister Institute has, therefore, prepared a special Group II. serum by immunising horses solely with Group II. strains recently isolated from sporadic cases in various parts of the country. This serum has been subjected to a concentration process in which a large proportion of the inactive protein is removed so that one volume of the concentrated serum is roughly equivalent in antibody content to three volumes of the original serum from which it was derived. The usual small quantity of tricresol has been added to the finished product. It is suggested that this serum, obtainable from Messrs. Allen and Hanburys Ltd., might be employed in the treatment of infants with meningococcal meningitis unless and until serological tests of the infecting strain have shown, as they will in a small minority of cases, that it belongs to Group I. Records are kept at the Ministry of Health of the serum treatment of meningococcal meningitis in every case in which information is available, and it is much to be desired that such information should be as complete as possible, since there is as yet no means of arriving at an assessment of the value of anti-meningococcus sera except the compilation of clinical findings. In reporting cases treated by concentrated anti-meningococcus serum, the actual quantity used, in cubic centimetres of the serum, should be stated and not the presumed equivalent amount of the natural serum.

LISTER'S HOUSE SURGEON

Dr. John Macfee, who died last Saturday at the age of 92 years, was house surgeon in 1864–65 at the Royal Infirmary in Glasgow. It was on August 12th, 1865, that a boy of 11 was admitted to the Infirmary after the wheel of an empty cart had passed over his left leg, breaking both the bones and causing a wound, 1½ inches long and ¾ inch broad, over the fracture into which a probe could be passed for some inches. Macfee, acting under Lister's instruction, dipped a piece of lint in liquefied phenol, laid it on the wound, and immobilised the limb with pasteboard splints, the dressing being left undisturbed for four days. When Lister then examined it there were some superficial sloughs caused by the phenol, but no signs of suppuration. The wound healed within six weeks and the boy's recovery was complete. Lister recorded this case in an article entitled "On a new method of treating compound fracture, abscess, &c.," which appeared at the time in our columns[1] and was reprinted[2] when the centenary of his birth was celebrated. It was at that time a portent for a dirty compound fracture to heal by first intention and Macfee was accessory to an act of historical interest. After completing his house-surgeoncy he left Glasgow for London, where he spent the remainder of his long life. His death severs what must be the last link between our time and the house surgeons of Lister's Glasgow days.

SINOGRAPHY

AT a meeting of the section of otology of the Royal Society of Medicine on Dec. 4th, with Dr. Douglas Guthrie in the chair, Dr. Paul Frenckner of Stockholm read a paper on sinography, a method of radiography in the diagnosis of sinus thrombosis. This method of investigation aims at determining the existence of an obstruction to the blood stream in the dural sinuses or in the jugular vein, and is accomplished by taking an X ray picture during the injection of a Röntgen-opaque substance into the sinuses. The technique is as follows: by means of specially made trepanning instruments the superior longitudinal sinus is exposed, and into this vessel a Röntgen-opaque substance is injected and, simultaneously, X ray photographs are taken. If there is any obstruction to the blood stream in any of the "evacuary" sinuses, the picture of the Röntgen-opaque substance shows where it is to be found. Anatomical variations and anomalies must be carefully taken into consideration in assessing the value of the radiograms. An objection to the procedure is that it involves exposure of a cranial sinus for the purpose of establishing the diagnosis of disease in another sinus. The commonest affection of a cranial sinus is infective thrombosis of a lateral sinus secondary to suppurative otitis, and here the diagnosis is usually sufficiently clear to warrant direct operative exploration of the diseased region. In rare cases, where there is bilateral aural suppuration, there may be a doubt as to which side is the cause of the symptoms.

THE following trustees have been appointed to administer Lord Nuffield's gift for medical research at Oxford: Mr. W. M. Goodenough, vice-chairman of Barclays Bank (chairman); Mr A. D. Lindsay, vice-chancellor of the University; Sir Farquhar Buzzard, regius professor of medicine; Prof. T. B. Johnston, dean of Guy's Hospital medical school; Mr. R. W. Thornton, chartered accountant; Mr. Douglas Veale, registrar of the University; Prof. Edward Mellanby, F.R.S., secretary of the Medical Research Council; Mr. Andrew Walsh, solicitor; Major R. S. Rowell, member of the Radcliffe Infirmary's board of guardians; and Mr. A. H. Wood, representing the Wingfield-Morris Orthopædic Hospital.

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[1] THE LANCET, 1867, i., 326.
[2] Ibid., 1927, i., 773.

LONDON HOSPITAL.—The sum of £80,000 is wanted by this hospital for essential improvements, and a dinner was held at Claridge's Hotel on Dec. 3rd in support of the appeal when donations amounting to over £4000 were received. The chief items of expenditure are £25,000 for a domestic servants' hostel, £21,000 for an extension to the nurses' home, and £15,000 for the ear, nose, and throat wards. A sum of at least £42,000 must be collected before an effective start with work can be made. The hospital has already received an anonymous gift of £10,000 towards the appeal.

PROGNOSIS

A Series of Signed Articles contributed by invitation

CXXII

PROGNOSIS IN PLASTIC SURGERY

II*

ACQUIRED DEFECTS

ACQUIRED defects may be the result of trauma, of disease, or of the treatment of disease. In this latter category come defects created in the removal of disease by surgical means, and also those which sometimes follow the use of radium and X rays and such cauterising agencies as diathermy and carbon-dioxide snow. Trauma, however, is the commonest cause, and the amount of damage inflicted necessarily varies from minor abrasions to extensive loss of tissues, which if untreated will cause severe secondary defect.

Abrasions

Recent.—Recent abrasions are frequently dismissed as being of little importance. When they are acquired on the modern tarred road such an attitude may result in a scar of reasonable texture, but of very bad appearance on account of its dark pigmentation. Immediate efficient cleansing under anæsthesia with a silver wire or stiff bristle brush will avoid all such pigmentation.

Healed.—Tar pigmentation cannot as a rule be removed after the wound is healed without complete excision of the whole of the affected area. Since these areas are frequently extensive and often multiple, this may mean the utilisation of a graft—an operation which is out of all proportion to the magnitude of the original injury.

Wounds

Recent.—Immediate suture after careful débridement naturally offers the best prospect of a good scar. Only when sufficient time has elapsed to allow of gross infection is it desirable to allow healing to occur before undertaking secondary excision and resuture. As a rule healing is obtained within less than five days of the accident.

Healed.—When a wound has healed and has produced an unsightly scar, improvement can frequently be obtained by excision of the scar and accurate resuture. Keloidal tendencies can usually be minimised by the pre-operative and sometimes the post-operative use of X rays or radium.

In some situations it is found that really good results cannot be assured. On the face scars which cross the supraorbital ridge or the lower border of the mandible frequently tend to become depressed. Scars in the malar region have a similar tendency, though in this situation a horizontal scar is less likely to be troublesome than a vertical one. On the body a vertical scar near the midline seems prone to become keloidal. This is particularly true of the neck and chest, and the tendency appears to diminish as the scar lies nearer the pubes. On the limbs vertical scars tend to become wide, though not necessarily keloidal, whereas transverse scars are less likely to be so obvious.

Tissue Loss

Recent.—Extensive lacerations should be treated as emergencies. If accurate débridement is carried out, if all tissue of doubtful viability is removed, and if the resultant raw area is immediately provided with a new skin covering, then healing by first intention should be the rule. Replacement of skin flaps without any regard to the certainty of their survival cannot fail to result in infection. As a result tissue which otherwise would have survived will be lost, healing will be delayed for many weeks, and there will finally remain a mass of scar tissue which will require subsequent removal.

Burned surfaces unfortunately do not lend themselves to immediate repair, but with careful treatment it should be possible to prepare the burned area to receive a skin graft within two to three weeks of the injury. The primary necessity is to provide a new skin covering at the earliest possible moment in order to avoid cicatricial contracture. Subsequent intervention with a view to improving the cosmetic result is best left for at least six months, since spontaneous improvement occurs for at least this period.

Healed.—Healed tissue losses result in cicatricial contracture. On the face this may cause ectropion of lids or lips, or gross distortion of other structures. On the body or limbs it may cause limitation of joint movement, and the presence of cicatricial bands is frequently associated with areas of chronic ulceration. As a rule such a scar must be removed in its entirety, and all normal parts allowed to resume their correct positions. The resultant defect is then made good either by some form of free graft or by a pedicle flap brought in from a distant part.

A graft cut with a razor considerably thicker than the original Thiersch is that most frequently applicable to large defects. It is however subject to certain disadvantages. Firstly a certain proportion wrinkle and contract. No reason can be ascribed for this and a repetition of the operation may result in a good graft. Secondly, it seldom acquires a colour exactly comparable to that of the surrounding skin. It may remain yellowish-white, though occasionally it may become dark brown in colour. In certain situations such as the eyelid, or back and front of the hand, it may become quite normal in colour. The yellowish-white type of graft may be improved by tattooage.

The Wolfe or whole-thickness graft gives good colour and texture in a larger percentage than the razor graft, and shows little inclination to contract. Larger grafts are, however, prone to failure as in the case of thick razor grafts.

Finally, flaps or pedicles may be necessary. This method has the great advantage of enabling the surgeon to import subcutaneous tissue as well as skin. Defects in contour can thus be made good at the same time as the skin covering is provided. These flaps may remain the same colour as the donor area but as a rule they slowly acquire the characteristics of their new situation.

Fractures

Recent.—Fractures of facial bones are frequently associated with skin injury. As a rule both lesions can be dealt with at the same time. If however there is no skin lesion demanding immediate treatment, the accuracy of reposition of the bony fragments may be facilitated by waiting for a week or so to allow all swelling to subside. When this has occurred the position of the fragments will be more readily palpable and their replacement more exactly controlled.

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* Part I. appeared last week.

Fractures of the mandible or of the maxilla should be dealt with as early as possible. There is no necessity to wait for the subsidence of swelling, since in most cases the occlusion of the teeth will afford the most accurate guide as to the accuracy of the reduction. In most of these fractures the coöperation of a dental surgeon is desirable.

Healed.—Neglected fractures of the nose frequently lead to some degree of nasal obstruction as well as to the cosmetic defect. Unless the nasal arch is replaced in its normal position it is seldom possible to restore and maintain the nasal septum in a central position. It is therefore desirable to undertake restoration to the normal as soon as possible. This is particularly so in fractures occurring before the completion of growth, since persistence of the displacement will result in an aggravation of the defects. Lesser degrees of nasal injury may be the cause of severe defect. For example, a nasal fracture may be associated with little displacement, but may be followed by an infected hæmatoma of the septum. This frequently results in severe deformity on account of the loss of support of the lower half of the nasal bridge.

When all sepsis has been eliminated, the bridge should be supported in its correct position by a bone or cartilage graft. This is of particular importance in children, since it appears that lack of tip support is frequently followed by failure of growth of the columella and alæ.

Neglected fractures of the malar zygomatic compound will result in persistence of some or all of the symptoms of this fracture, namely:

(1) Pain on mastication.

(2) Low level of the eye on the affected side with or without diplopia.

(3) Anæsthesia of the upper lip and anterior teeth on the affected side.

It is frequently possible to mobilise the fracture and replace it. If this is not desirable or possible, then the effects of the fracture on the eye may be ameliorated by building up the orbital support by bone or cartilage graft, and the loss of contour in the malar region may be disguised by a fat graft.

Neglected fractures of the mandible or maxilla are usually capable of mobilisation and reposition. If, however, a mandibular fracture has been complicated by infection and bone loss, then the whole dental occlusion has been disrupted. In this case a series of operations will possibly be necessary, having as their first aim the bridging of the defect by bone, and as the second disguise of any secondary defects which may have occurred.

Loss of Special Structures

The loss of nose, lips, ears, or other specialised structures, whether as the result of accident or disease, can usually be made good. As a rule these repairs must necessarily be carried out at the expense of some other part of the patient's anatomy. In the case of an ear loss it may be desirable to utilise the cartilage from another person as the basis for the reconstruction. This leads to less defect in the donor than would be imagined.

All of these reconstructive operations are as a rule a little slow, but it must be remembered that a new nose can be constructed in as short a time as three weeks. Complete reconstruction of (say) one side of the face, together with eyelids, must necessarily occupy considerably more time, although each operative stage is relatively short—say two to three weeks. Even though this type of work occupies valuable time and requires much patience, it is found that the patient is always coöperative. The prospect of being relieved of a deformity which precludes all social contacts is more than a sufficient incentive. Nor must it be forgotten that even a small physical lesion may be the cause of great mental distress. The removal of the lesion may be the means of avoiding or alleviating much of the chronic ill health which is associated with the abnormal sensitiveness from which these patients often suffer.

H. D. GILLIES, F.R.C.S.,
Plastic Surgeon to St. Bartholomew's Hospital.

RAINSFORD MOWLEM, M.B., F.R.C.S.,
Surgeon Specialist, Plastic Unit, L.C.C.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Capt. G. R. McCowen, O.B.E., to *President* for course.

Surg. Lt.-Comdrs. A. J. Burden to *Pembroke* for R.N.B.; T. F. Crean to *Pembroke* for R.N. Hosp., Chatham; and J. G. Currie to *President* for course.

Surg. Lts. C. J. Mullen to *Resolution;* and B. M. O'Sullivan to *President* for course.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Lt. R. H. Longmoor to be Surg. Lt.-Comdr.

Surg. Lt. W. E. Thomas to *Resolution*.

Proby. Surg. Lt. A. I. L. Maitland to be Surg. Lt.

ROYAL ARMY MEDICAL CORPS

The undermentioned appt. has been made in India:—

D.A.D.H.: Maj. J. N. Atkinson, R.A.M.C.

Maj. T. L. Henderson, R.A.M.C., has assumed the post of specialist in surgery at Bareilly.

SUPPLEMENTARY RESERVE OF OFFICERS

Lt. S. D. Loxton to be Capt.

TERRITORIAL ARMY

The King has conferred the Efficiency Decoration upon the undermentioned Officers under the terms of the Royal Warrant dated Sept. 23rd, 1930: Lt.-Cols. W. H. Kerr and J. M. Chrystie; Majs. W. R. Watt and H. M. Holt.

ROYAL AIR FORCE

Squadron Leaders F. L. White to Central Medical Establishment, London; and B. W. Cross to Aircraft Depôt, Hinaidi, Iraq.

The undermentioned Flight Lts. are granted permanent commissions in that rank: F. W. P. Dixon, M.B.E., and C. R. Palfreyman.

Flight Lt. C. A. Lewis relinquishes his short service commission.

DEATHS IN THE SERVICES

Major-General Sir GEORGE DEANE BOURKE, who died on Monday in London at the age of 84, was born in Nova Scotia to Lieut.-Colonel T. J. Deane Bourke, who married the daughter of the Ven. Robert Willis, Archdeacon of Nova Scotia. He qualified L.R.C.P. and S.I. in 1873, and joined the R.A.M.C. in the following year, becoming colonel in 1903. He served with the Nile expedition 1884–85, in Burma 1889, and with the Chin Lushai expedition 1889–90 (dispatches and clasp). He became principal medical officer of the Western District 1903–08, and P.M.O., Irish Command, 1908–12. He was made a C.B. (mil.) in 1907, K.C.M.G. in 1917, and was hon. physician to the King from 1909 to 1912. Retiring in 1912, he went to the Balkans under the British Red Cross Society. During the European War he was re-employed as D.D.M.S. Scottish Command, and later as D.D.M.S. Aldershot Command. He married in 1883 Mary Morrow, daughter of John Stairs, formerly of Fairfield, Halifax, N.S., and has a son, Group Captain Ulick John Deane, C.M.G., R.A.F. (retd.).

SPECIAL ARTICLES

VITAMIN C AND JUVENILE RHEUMATISM

WITH SOME OBSERVATIONS ON THE VITAMIN-C RESERVES IN SURGICAL TUBERCULOSIS*

By M. A. Abbasy, M.B.

N. Gray Hill, M.C., M.B. Lond., D.P.H.

and

Leslie J. Harris, Sc.D., D.Sc., Ph.D.

(From the Nutritional Laboratory, Medical Research Council and University of Cambridge, and from Queen Mary's Hospital for Children, Carshalton, Surrey)

A correlation between the incidence of juvenile rheumatism and poverty has more than once led to the suspicion that some error of diet might be a causative factor in the disease. However, in the absence of any scientific evidence this view has received little notice and has failed to become part of the current recognised "medical teaching": it has remained but one among a multitude of alternative theories advanced from time to time as suggested explanations for the known social and environmental relations of the "rheumatic state"—e.g., the "damp" theory, the "allergy" theory, the "hygiene" theory, the "exposure" theory.[1, 2]

But recently, in 1933–34, what may be termed the dietary view was brought strikingly to the fore when Rinehart and his co-workers[3] at San Francisco found that in experimental guinea-pigs a chronic partial deficiency of vitamin C, plus a superimposed infection, resulted in the appearance of pathological changes having nearly all the essential features of those found in rheumatic fever in human beings. They concluded that in human beings deficiency of vitamin C combined with an infection might in the same way account for the pathogenesis of the disease. To test this theory, Perry[4] at Bristol examined for vitamin-C reserves a group of 5 active and 6 quiescent cases of rheumatic heart disease, following the test-dose technique as described by Harris and Ray[5] (i.e., urinary excretion of vitamin C after administration of a test dose). Perry's main conclusion was that "vitamin-C deficiency is not an important factor in the causation of acute rheumatism"; at the same time however the finding is given that "mild degrees of this deficiency are not uncommon in rheumatic children."

As Perry's results seemed to us to need repeating on a more extensive scale, before conclusions could be obtained which might be relied upon as of statistical significance, we undertook a survey to embrace a very large number of children. To date, some 107 active rheumatic cases have been examined, some 86 convalescent cases, together with 64 controls, and 42 cases of surgical tuberculosis in the earlier stages of the disease, and 46 cases of quiescent surgical tuberculosis. As a result we have found a striking difference between the excretion of vitamin C by the rheumatic cases (active or convalescent) compared with the controls, while the results on surgical tuberculosis are also of interest, and may be studied alongside. Since this work was concluded a valuable paper by Sendroy and Schultz[6] has appeared having an object very similar to our own. While an analysis of their actual experimental results shows that in many respects these closely resemble our own, we would prefer to give an entirely different emphasis to our conclusions, since their main finding is that "applied to a comparison of patients with rheumatic fever and control subjects, the results of this method do not support the concept that a condition of ascorbic acid deficiency is a predisposing factor in the causation of this disease."

ARRANGEMENT OF EXPERIMENT

Conditions at the Queen Mary's Hospital for Children at Carshalton permitted of observations being made on large numbers of children, all of whom could be kept for long periods under observation and maintained under controlled conditions as to diet, &c. The children were under the clinical care of N. G. H., and the titrations on the urine were carried out by M. A. A.

Technique of urine tests.†—For the purpose of an investigation such as the present, in which the object was merely to obtain comparative results on the behaviour of large groups of individuals, it was not found necessary to carry out confirmatory "test dose" measurements on the entire series of children examined; it has already been shown (and is again apparent from the present work) that under ordinary circumstances the responses to such test doses are simply graded according to the "resting level" of excretion.[7] Quantitative data[7, 8] were given in previous papers showing how this "resting level" of excretion varied when various given graded doses of vitamin C had been included in the past diet; it was found that when the diet contained the reputed bare "minimal optimum" dose of vitamin C (25 mg. for an adult of 10 st., equivalent to rather less than the juice of one fresh orange) the resulting excretion of vitamin C at equilibrium was approximately 13 mg. per day.[7, 8] Hence it was argued that a steady excretion of less than 13 mg. per day (per 10 st. body-weight)—our "standard" level—raised the presumption that the past diet had contained less than the reputed minimal optimum dose of vitamin C. This standard of 13 mg. per day has been used as a kind of base-line for further work, including the present tests; and the numerous results on control cases to be recorded below provided further welcome evidence as to the validity of this figure. Whereas something like 75 per cent. of subjects of the voluntary hospital classes examined in our earlier tests[8] showed excretions below this standard (indicating the presumption of an inadequate diet), *all* the controls in the present series, known to have been on adequate diets for some time past, gave values above the standard. A proportion of the controls who were examined further by the test-dose procedure, 10 in number, were all likewise found to fulfil the other criterion laid down—namely, to give a response to the standard test dose (700 mg. per 10 st. body-weight) generally on the first day and certainly on the second day (see Fig. 2).

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* This paper forms the subject of a communication made to the Biochemical Society on Oct. 17th, 1936 (abstract in "Chemistry and Industry," 1936, lv., 838).

† It does not seem necessary for the present purpose to cite in full the now extensive literature dealing with the excretion of the indophenol-reducing substance (vitamin C) in urine: for the earlier of the papers on the subject see Cohen, Gibbs, and Clark[6a], Euler and Klussmann[6b], Eekelen, Emmerie, Josephy, and Wolff[6c], Harris, Ray, and Ward[6d] Johnson and Zilva[6e], Harris and Ray.[5]

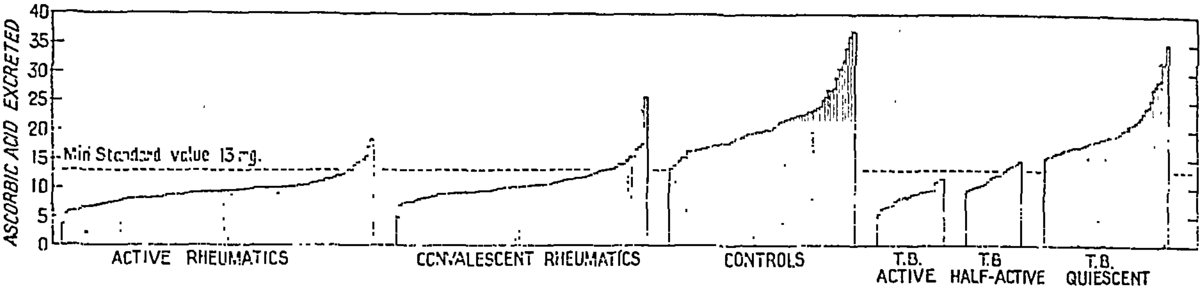

FIG. 1.—Comparison of the amounts of vitamin C excreted by active and convalescent rheumatics as compared with controls, and by active, "half active," and quiescent cases of surgical tuberculosis. (Ascorbic acid in mg. per day per 10 st. of body-weight.)

Children with subnormal "resting levels" gave a correspondingly diminished response to test doses.

Apart from a deficiency in the diet, the other principal factor known to cause a reduction in the excretion of the vitamin is the presence of pyrexia, infective conditions, or toxæmias. In such states the vitamin reserves appear as though they were being used up at a faster rate than normally, and indeed there is growing evidence that vitamin C is in fact an important factor in protecting against infection.

The increased liability to infection seen in the scorbutic or subscorbutic state was early emphasised, particularly by Hess,[9] *and much such evidence, clinical and experimental*, has been well reviewed by Mackay.[10] Lately a fresh connexion between vitamin C and infection has been reported in the influence of the vitamin in increasing the resistance to diphtheria toxin and in inactivating the toxin in vitro [11-17] or in exerting a possible "antitoxic" *action in relation to other organisms.*[18 19 20] *The claim* that deficiency of vitamin C causes a diminution in the complement titre [20 21] has been questioned.[22]

TABLE I

Summary of Results

—	Excretion of ascorbic acid, mg. per day (per 10 st. body-weight).				
	Lowest value observed.	Highest value observed.	Values characteristic of each group, as calculated from—		
			(1) *Range* of middle third.	(2) *Mean* of middle third.	(3) Median (or average) value.
Controls ..	13·3	37·2	18·1–21·7	19·9	19·7 (20·9)
Rheumatics—					
Active ..	3·7	18·2	8·7–10·1	9·4	9·3 (9·6)
Convalescent	4·7	17·4	9·5–11·1	10·1	10·1 (10·6)
Surgical tuberculosis—					
Active ..	5·7	11·7	8·2– 9·1	8·6	8·6 (8·6)
Half-active .	9·6	14·8	10·7–12·5	11·7	11·9 (11·9)
Quiescent ..	15·2	35·0	17·7–20·1	18·9	18·9 (20·3)

TABLE II

Number of Cases found Below Standard in the Various Groups

—	Total examined.	Below standard.	
		Number.	Percentage of total.
Controls	64	0	0
Rheumatics—			
Active	107	98	92
Convalescent ..	86	71	83
Surgical tuberculosis—			
Active	23	23	100
Half-active ..	19	14	74
Quiescent	46	0	0

It is reasonable to argue therefore that when the excretion is found to be low, either the diet has been poor in the vitamin or else an infective condition has been present, in which the needs for the vitamin are probably increased and the body's stores presumably called upon and depleted to more than the usual degree. (Apart from infective conditions, a lowered excretion of vitamin C has been recorded also in certain mental disorders,[22a] and in several cases of Addison's disease which were recently *examined.*[22b] *The latter finding is of special* interest in view of the involvement of the suprarenal glands, which are known to be exceptionally richly endowed with the vitamin.[22c])

Analytical procedure.—The titrations were carried out as previously described.[7] The samples of urine were collected, with addition of acetic acid, in dark-coloured glass bottles, the night urine being analysed first thing in the morning and the daytime urine in the evening. Urines were collected and analysed generally on three consecutive days each week, and relatively little day-to-day variation was noted. In the actual estimation, which consists of a simple titration against 2 : 6-dichlorophenolindophenol, the main point to be stressed, as previously noted, is that the titration should be carried out rapidly.[8]

CASES EXAMINED

We have examined a group of 107 active rheumatic cases and 86 convalescent rheumatic cases. For controls, a group of 64 individuals was taken, receiving *the same institutional diets.*

Diets.—The dietary was a liberal one, and contained an ample supply of fruit, sufficient to bring the daily intake of vitamin C well above the "minimum standard" of 25 mg. per day per 10 st. body weight. All children over 3 st. in weight received a minimum of at least one orange per day, or those under 3 st. of *half an orange* per day; generally the intake is appreciably higher than this minimum, apples and bananas being included in the dietary from time to time. In addition, many of the active, and some of the convalescent, rheumatics received about 8–10 oz. daily of a "fruit drink" (containing five lemons or oranges in 4 pints).

In view of the considerations referred to above, individuals with pyrexia were excluded from the control group; the control subjects were mostly cases of congenital deformity or cases of debility well on the way to recovery. *In order to compare* with another infective condition, we have examined, further, a number of patients with surgical tuberculosis, of whom 23 were described as "active" cases, 19 were cases who had improved under treatment but had not yet reached the quiescent stage nd are here described as "half active," and 46 were "quiescent" cases.

Mode of expression of results.—In order to compare children of varying ages with adolescents and adults, the simplest procedure, which is sufficiently accurate for the present needs, seemed to be to reduce all values to a common basis of body-weight. On "good" normal diets, the *concentration* of vitamin C in the urine does not vary greatly, whereas the *total weight* passed per day of course increases with age, as does the volume of urine, the weight of food eaten, and the body-weight.

Diagnosis.—The term "juvenile rheumatism" is used to cover rheumatic fever, rheumatic heart disease, chorea, and allied conditions, generally regarded as being of a rheumatic nature. As all the subjects were children who had been admitted under the L.C.C. Rheumatic Scheme for further treatment at Carshalton, the diagnosis of rheumatism had been checked by several experts in turn, and the classification shown in our tables into the several categories, of "active," convalescent, &c., is that made by the medical officer in charge of the case by whom the progress of the disease is judged. Diagnosis of convalescence in the rheumatic cases is usually checked by tests of sedimentation-rate. It may be noted that the cases seen at Carshalton are not as a rule of the most severe fulminating type; it is not unlikely that an even lower average rate of excretion would be seen in such cases.

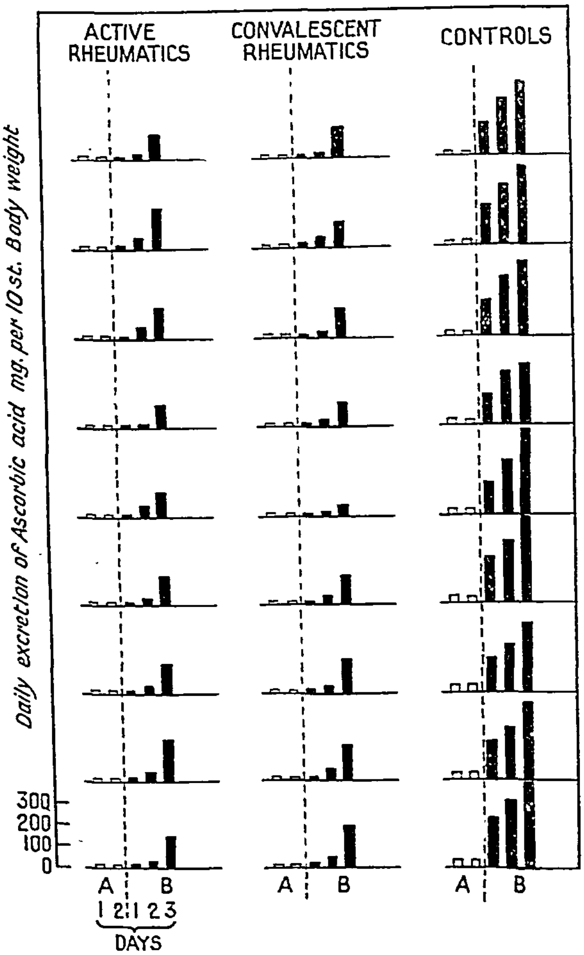

FIG. 2.—Response of rheumatic cases compared with controls to daily test doses of vitamin C. (A = resting level. B = responses after daily test doses.) It will be observed that the rheumatic cases, both active and convalescent, give little response until about the third day, the response of the control cases being generally greater on the *first* day than that of the rheumatics on the *third* day.

For ease in comparison, cases in each group are arranged in ascending order of their original resting levels.

RESULTS

As there was little significant variation in day-to-day excretion, for convenience the *average* values were calculated for each subject, and the results (reduced to a basis of 10 st. body-weight) are summarised in Tables I. and II.[‡] and shown graphically in Fig. 1. It will be seen that there is a striking difference between the range of values for the excretion of vitamin C as between the control subjects and the rheumatics.

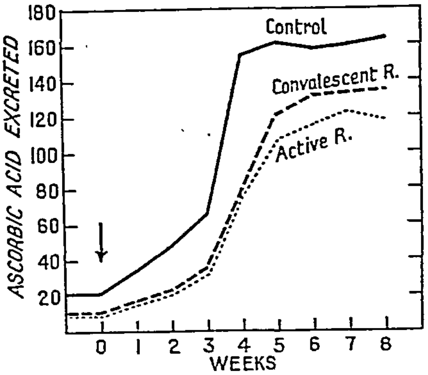

FIG. 3.—Excretion of vitamin C by controls as compared with active and convalescent rheumatics, following an increased daily intake of vitamin C. At the arrow the daily intake of vitamin C was increased by the addition to the diet of extra orange juice, at the rate of half an orange per day per one stone of body-weight. The values shown are the averages of 17 to 20 cases in each group. (Ascorbic acid in mg. per day per 10 st. of body-weight.)

(1) The *control subjects* without exception excreted more than the "standard" level of 13 mg. per day per 10 st. of body-weight—the figure found in earlier tests to be the rate of excretion of subjects receiving the reputed "minimal optimum" dose of vitamin C (25 mg. per day). The average (or median) value for this control group was 20 mg. per day.

(2) The *active rheumatics* in contrast, although they had been receiving similar diets for periods of from a few days to several months, excreted an average of only 9 mg. per day per 10 st. body-weight. Of these subjects no less than *92 per cent. of cases were below the standard.*

(3) The *convalescent rheumatics* continued to show a low rate of excretion (average 10 mg. per day, with *83 per cent. of the cases below standard*).

(4) Cases of *active surgical-tuberculosis* resembled other conditions of infection or pyrexia in showing lowered excretion (average 9 mg. per day, with *100 per cent. of cases below standard*). But in contrast with the convalescent rheumatics, the cases of quiescent surgical tuberculosis showed a normal range of excretion (average 19 mg. per day, with *100 per cent. of cases above standard*). The cases of "half-active" surgical tuberculosis gave intermediate readings (see Tables I. and II.).

Effect of test doses.—In a number of cases test doses have been administered, and the results give striking confirmation to the conclusion that the rheumatic subjects, both active and convalescent, are in a lower state of saturation than the controls (Fig. 2).

Results with increased intake of vitamin C.—The same conclusion was apparent also when the regular daily intake of vitamin C was greatly increased. As will be seen from the summary of the results (Fig. 3), the rheumatic subjects, active and convalescent, took longer to reach a given level of excretion than did the controls receiving the same large dose of orange juice. Furthermore, when after five weeks the new state of equilibrium had been attained corresponding with the new diet, the new "resting level" for the rheumatics (convalescent as well as active cases) remained markedly below that for the controls (see Fig. 3). The difference between the excretion by the controls and by the rheumatic subjects is indicative of the apparent increased use of vitamin C by the rheumatic subjects; it may amount under the conditions of these tests to as much as 20 mg. per day, or more.

[‡] Owing to pressure on space the tables that give the findings in detail have not been inserted.

DISCUSSION

Significance of results.—Our results may be summarised by saying that rheumatic cases (including those in the convalescent state) have a deficit of vitamin C in their urine as compared with control subjects, even when their diet for a considerable time past has contained amounts of vitamin C that would certainly be adequate for normal subjects. While various alternative interpretations of this finding are possible, the simplest explanation appears to be that in the rheumatic subjects there is an increased need for vitamin C and probably an increased destruction in the body (vide supra). (The view that infection may in fact increase the metabolic need for vitamin C is not a new one,[23] [24] and is supported by the old observation that infection may predispose to, or precipitate, an attack of scurvy.[25]) The question then arises: does the rheumatic state differ in this respect from other infective conditions, in which a lowered excretion, or a lower state of saturation, of vitamin C may also be met with? Further statistical studies of the excretion of vitamin C in various infectious diseases will be necessary before a final answer can be given to this question.

So far we have found lowered rates of excretion in virtually all the infective conditions studied, and this seems in general agreement with the findings of other workers, several of whom have recently recorded a diminished excretion of vitamin C in pulmonary tuberculosis.[25a] Many of the arguments adduced below for the administration of vitamin C in rheumatic conditions probably apply equally to other infective states. The use of fresh fruit drinks in pyrexia and convalescence, long given in a more or less empirical way, therefore may have good scientific warrant.

In the meantime however attention may be drawn to a specially striking feature of the rheumatic cases—the long-continued persistence of the low vitamin-C figures even when the disease is, clinically speaking, quiescent or convalescent, and the child is in an apparently good state of health.

The low values in convalescent rheumatism.—It seems likely that there may be a special significance in this continued low excretion in convalescent rheumatism, since it is a well-known clinical feature of the disease that such cases are in an unstable condition and are particularly liable to suffer recurrences. In other words, the persistent lowered excretion appears to be the sign of a continued latent infection which the body has not yet finally overcome. The results with quiescent surgical tuberculosis are in striking contrast in this respect, and fully in accord with the clinical experience that in this disease in young people a cure is likely to be permanent and free from relapse.

Possible diagnostic use.—It seems likely that the finding of a subnormal excretion of vitamin C when the diet is known to have contained for some time past the usually adequate allowance (e.g., 25 mg. ascorbic acid, or about one orange per day) might be used, in conjunction with clinical evidence, as a diagnostic index in juvenile rheumatism for revealing the presence of a continued latent infective process.

Therapeutic considerations.—The question still remains: is the vitamin-C deficiency (or relative deficiency) a cause or an effect of the infective process? From a practical point of view, if the explanation given above be correct, the two alternatives amount, in one sense, to almost the same thing: the rheumatic subject is one who appears to have an *increased need* for vitamin C. There seems no doubt that our experimental results are to be related more directly to the effects of rheumatic fever rather than to its origin. At the same time, however, it may reasonably be argued that when a child is exposed to the rheumatic infection he will be less likely to resist it effectively if his diet is low in vitamin C, the importance of which in combating infection is now becoming evident. In other words, there may be the dietary factor at the beginning of the disease as well as a continued alteration in the metabolism of the vitamin when the disease has developed. Similar conditions probably apply in other infective conditions; for example, it has long been credited that a defective diet may increase the susceptibility to tuberculosis, and it is stated that tuberculous meningitis rarely develops in hospital where the child is kept under sound dietetic and hygienic conditions. Be that as it may, a number of considerations unite to suggest that vitamin-C therapy is likely to be helpful in juvenile rheumatism, and at any rate should be given an extensive trial, both as a prophylactic measure and in curative treatment.

Arguments for vitamin-C therapy.—The evidence in support of this view may be summarised under the following headings.

(1) *Urine analyses.*—The findings given in the present paper suggest that there is in fact a lowered degree of saturation of the body tissues in the rheumatic state.

(2) "*Anti-infective*" *properties of vitamin C.*—There is much independent evidence (see above) that vitamin C *is a factor increasing the resistance to infection*, although its precise mode of action is not yet understood.

(3) *Epidemiological evidence.*—Much past observation indicates that the incidence of rheumatic conditions is often associated with an impoverished diet, in which *partial deficiency of vitamin C is likely to be one of the most usual defects.* (Previous tests [8] show that about 75 per cent. of the working-class families examined were "below standard" in their vitamin-C excretion; middle-class or professional-class individuals by contrast were generally above standard. *A similar conclusion is reached* from Orr's survey [26] of the food actually purchased in such populations. Again, in poor-law institutions juvenile rheumatism is said to have a strikingly diminished incidence compared with that in poor working-class areas [1]; the greatly improved food given suggests itself as a possible factor—the amount of money spent per head on food being considerably higher. As further evidence of a lowered state of nutrition among the rheumatic classes may be mentioned the finding of Ellison and Moore [29] of a subnormal range of vitamin-A reserves in the liver of children with rheumatic heart disease, *post mortem.*)

(4) *Experimental evidence.*—As mentioned above, it has been claimed that rheumatic lesions may be produced experimentally by deficiency of vitamin C plus *superimposed* infection.

(5) *Presence of latent rheumatism.*—The occurrence of a *continued condition of relative "unsaturation,"* seen in convalescents while they are in a condition in which they are known to be liable to relapses, is a further *argument* for vitamin-C therapy.

(6) *Clinical evidence.*—The claim is already put forward by *some clinicians that fruit and vegetables* (= vitamin C) are useful therapeutically and prophylactically (see below).

A recent paper by Schultze,[27] following on the somewhat negative results of Sendroy and Schultze as to the utilisation of ascorbic acid by rheumatic children, already cited, concluded that the "clinical manifestations of acute rheumatic fever were *not* demonstrably affected by the oral or intravenous administration of ascorbic acid . . . [or of] large doses of orange juice." A similar finding was reached by Faulkner,[24] who noted however that vitamin C might increase the reticulocyte count in rheumatic fever and in certain other infectious diseases, and who supported the interpretation that such diseases might lead to a secondary deficiency of the vitamin. In contrast however with the negative therapeutic results of Schultze and of Faulkner, clinical opinion may be found to express such a divergent view as the following: "Rheumatism is largely avoided if plenty of the citrous fruits are taken, especially if lime or lemon juice is taken in water, along with green vegetables and an increased amount of water. I find that heart trouble of rheumatic origin often disappears by including the aforesaid in a dietary" (Glover [28]). In the absence of any generally accepted medical teaching in this matter we think the present results are sufficient to justify further clinical trials. In conclusion it may be added that as the consumption of one orange per day is more than sufficient to bring normal individuals to "standard," the fact that rheumatics are almost habitually below standard shows that the addition which we suggest *to* the diet cannot be considered unreasonable or far-fetched.

SUMMARY

A striking difference has been found between the range of values for the excretion of vitamin C in the urine of rheumatic patients (active and convalescent) and those of control subjects.

A group of 64 control subjects receiving an adequate institutional diet all excreted more than the standard level of 13 mg. per day per 10 st. of body-weight (the figure which was found in earlier tests to be the rate of excretion of subjects receiving their bare "reputed minimal-optimum" dose of vitamin C). The *average* (or median) value for this control group was 20 mg. per day (all values are recalculated to a basis of 10 st. body-weight).

In contrast, a group of 107 active rheumatic cases receiving the same institutional diets for periods of up to several months, excreted an average of only 9 mg. per day (92 per cent. being below the standard level of 13 mg.). This low level of excretion persisted in convalescent cases (86 cases, average excretion 10 mg. per day, with 83 per cent. of cases below the standard level of excretion of 13 mg.). This last finding accords with the clinical concept that convalescent cases are in an unstable condition, and liable to recurrences.

In common with other conditions of infection or pyrexia, a group of 23 cases of active surgical tuberculosis showed low rates of excretion (average value 9 mg. per day, and 100 per cent. of cases below standard), but in contrast with the results for convalescent rheumatics—and in keeping with the clinical concept—quiescent tuberculosis (46 cases) gave normal excretions. (A group of 19 cases of "half-active" surgical tuberculosis gave intermediate readings.)

The most reasonable interpretation of these results is that with the infection which underlies rheumatic fever there is a greatly increased metabolic use of (and need for) vitamin C, and a correspondingly lowered degree of "saturation" of the body tissues. In confirmation of this view, it was shown in further experiments that an increase in the daily intake of the vitamin, or the administration of a series of test doses, gave a lower urinary response in the rheumatic than in the control subjects.

For treatment the administration of large amounts of orange juice or other sources of vitamin C seems indicated both therapeutically and prophylactically.

Our thanks are due to Sir Frederick Menzies for kindly providing facilities for this work, to Dr. Gordon Pugh for his very helpful coöperation, to Miss Mary Allan for clerical assistance, to Messrs. Hoffmann-La Roche for supplies of the ascorbic acid, and to the Egyptian Government for generous financial support (for M. A. A.).

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DISTRICT NURSING.—To celebrate the jubilee of the Queen's Institute and County Associations for District Nursing, which occurs next year, it is proposed to issue a public appeal for funds. There are many places not served, or inadequately served, by these nurses, and to recruit and train another 1600 nurses will cost from £50,000 to £60,000. It is also necessary to increase the salaries of the existing nurses.

GENERAL MEDICAL COUNCIL

WINTER SESSION, NOV. 24TH–27TH, 1936

Prof. J. B. Leathes introduced the report of the Education Committee. Many representations had been received in favour of postponing the operation of the new resolutions to Oct. 1st, 1938, and it recommended this date to the Council. The Council agreed.

The revised rules for the registration of medical and dental students were discussed in camera.

Prof. J. S. B. Stopford presented the report of the visitation of the anatomy and physiology examinations, which showed that these were being satisfactorily conducted throughout the country. Attention was, he said, being paid to surface and applied anatomy and to X ray appearances.

Sir Henry Dale said that the British Pharmacopœia 1932 had been well received and was selling rapidly, the total number sold now being 42,210. It was hoped to publish the next edition in 1941.

The Diploma in Public Health

Sir George Newman introduced the report of the Public Health Committee. He asked for revision of the rules adopted in 1930, a revision which was partly medical and partly due to the increasing demands of the State. The Local Government Act, 1929, had profoundly affected the whole scope of public health administration, and new legislation had since been passed in respect of mental treatment, milk-supplies, and midwifery services. The rules issued from time to time epitomised the corpus of knowledge which the State expected, and had been the model for public health services throughout the world. They had been translated into every civilised language. Great Britain was the pioneer interpreter of the health of communities.

Sir George then presented the draft resolutions and rules for diplomas and degrees in sanitary science, public health, or State medicine. Application had been made to the committee to delete the word "registrable" from the first rule. The legal assessor had advised them that the word should be removed, so that the rule laid down a minimum period of two years between the attainment of "a qualification" and the grant of the diploma. Thus any medical man, whether on the British Register or not, could take the examination; but if not a registered practitioner he would then hold an unregistrable diploma. The gate was thus opened to those who had for years asked permission to sit for these examinations. The second rule made provision for candidates who could not leave their work for a twelve months' course; it clarified the existing rule allowing them to take an equivalent course spread over a longer period with a minimum of three months' whole-time study. Under the third rule a burden of analytical chemistry, radiology, and electrology was removed from the student; these subjects were no longer necessary to the medical officer of health. By the fourth rule there had been added to the syllabus: industrial hygiene, hospital administration, house planning and sanitary construction, and genetics and mental hygiene. In the sixth rule provision was made for certification of completion of course by other than medical officers. Town clerks and sanitary officers were often valuable tutors in the practical part of the course. To this part had been added, as new subjects, "Hospital Services" and "Arrangements for Dealing with Mental Disorder and Deficiency."

Dr. John Ritchie, M.O.H. for Dumfries, who seconded the proposals, emphasised the large number of subjects which might legitimately be included and the impossibility of doing justice to all of them. The committee's aim had been to simplify rather than to elaborate, and to set forth their ideas in general terms without going into matters of detail which could safely be left to the teaching bodies. Analytical chemistry had long been a source of irritation to teachers and students; they could not do enough to make it of any real value and yet had been compelled hitherto to spend a lot of time on a subject which the medical officer of health to-day always delegated to a chemist.

Sir Farquhar Buzzard asked why genetics and mental hygiene were put together.—Dr. Letheby Tidy thought Rule 1 was very wide; the word "qualification" would include minor qualifications from unidentifiable places and cause difficulty. He supposed it was still impracticable to ensure some post-graduate experience of medicine before starting on the D.P.H. course. He was sure everyone would welcome the omission of the word "electrology." He hoped the committee would consider the great complexity of genetics, and not think it was a simple and easy subject and push it too far.—Dr. D. J. Coffey urged that the basis of "qualification" in Rule 1 should be the usual reciprocity arrangements.—Sir Henry Dale pressed for an answer to Sir Farquhar Buzzard's question and supported Dr. Tidy's views on genetics. The association of genetics with mental hygiene was misleading and unfortunate.—Sir George Newman said he rather agreed, but there was a feeling that genetics should appear somewhere. He suggested a separate section.—Mr. Bishop Harman thought that to leave genetics alone in a section would make the subject too important.—Dr. Tidy suggested the formula: "the principles of genetics in relation to public health."

It was agreed to that the list should read:

(e) House and town planning and sanitary construction.
(f) The principles of (a) genetics,
(b) mental hygiene,
in relation to public health.

Prof. Sydney Smith thought this theoretical part of the syllabus was getting overcrowded and asked how far the subjects were to be taken. He welcomed the widening of Rule 1 on behalf of practitioners in the East.—Dr. H. H. Brackenbury thought the old rule answered this difficulty. It said "physiology and biochemistry in relation to nutrition and hygiene."—Dr. Coffey thought the addition of "town planning" to the committee's original suggestion of "house planning" would add many complications.—Mr. H. L. Eason pointed out that this report was going to the licensing bodies and such points could be discussed there and the decisions referred to the Council at its next meeting.

The draft resolutions were then adopted.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

MALIGNANT DISEASE OF THE THYROID

At a meeting of the Edinburgh Medico-Chirurgical Society last week Mr. James Graham read a paper on malignant disease of the thyroid gland based on his personal experience of 20 cases, 7 of which were males and 13 females. He pointed out that the condition is much commoner in those countries in which endemic goitre is prevalent. He distinguished five types of malignant disease of the thyroid gland: adenocarcinoma, papillary adenocarcinoma, spheroidal cell carcinoma, epidermoid carcinoma, and sarcoma. The adenocarcinoma is much the commonest type and is liable to develop in cases of simple goitre. In the early stages the tumour is intracapsular and is then difficult, or impossible, to diagnose. In the later stages the extensive infiltration makes the diagnosis obvious. The papillary adenocarcinoma is a less malignant type of goitre and may show no spread even after being present for many years. The spheroidal cell carcinoma is the most malignant type. The epidermoid carcinoma is rare and has to be distinguished from the tumours which spread directly from the œsophagus or pharynx. Sarcomata are very rare. In the diagnosis of malignant disease of the thyroid gland, hoarseness, dyspnœa, and dysphagia are much more common in malignant than in simple goitre. X ray examination of the neck and chest is often of value for it demonstrates the displacement of the trachea and also the presence of retrosternal goitre or enlarged mediastinal glands. In American clinics, however, as many as 50 per cent. of the cases of malignant goitre are not diagnosed before operation. Radiography of the bones may be valuable and the presence of secondary tumours in bone may cause symptoms before the primary growth is noticed. In the differential diagnosis, simple or calcified nodules in the gland, Riedel's thyroiditis, syphilitic thyroiditis, and carcinoma of the œsophagus have to be particularly considered. Mr. Graham went on to consider the question of treatment. He said that operation is indicated when the diagnosis is made early in cases of malignant adenoma. To be successful the operation should be undertaken at a stage when the diagnosis is suspected rather than definite. It is too much, however, he said, to recommend operation in all cases of nodular goitre, but a suspicious attitude should be adopted towards all these when they appear in older patients. In advanced cases operation may have to be carried out to relieve compression on the trachea, but when removal of the tumour is incomplete, recurrence sometimes occurs with great rapidity. Some cases of malignant goitre show an extreme degree of radio-sensitivity, and Mr. Graham was able to illustrate cases in which a large mass of disease disappeared with deep X ray therapy in the course of a few weeks.

HOSPITAL RECONSTRUCTION

Last week the Duke of York reopened the Church of Scotland Deaconess Hospital which has been reconstructed at a cost of over £40,000. This hospital, which is the only hospital in Britain that is maintained by a Protestant church, was built 42 years ago. To the existing hospital accommodation, 32 beds have been added, and the total is now 86. The hospital is situated in a poor district of the town and deals with all types of medical and surgical cases; it also has a maternity service and children's ward. There are no paying beds.

SLUM CLEARANCE PROBLEMS

The Edinburgh town council are concerned over the difficulty of providing adequate medical attention for the population in their new housing scheme at Niddrie Mains. The population of this area nearly amounts to 8000 and there is no resident doctor in the neighbourhood. Many of the people now living in this new area were accustomed to make use of the dispensaries in the centre of the town. These dispensaries, however, are all supported by charity, and it is evidently beyond the power of the local authorities to establish a general dispensary of this type. The distance from the university would also make it difficult to obtain medical students willing to work in a dispensary in this area. The difficulty of obtaining medical attention, particularly for the children, has been a cause of considerable complaint by the population in the new housing area. The town council propose to attempt to improve matters by arranging for a resident nurse and doctor in the district.

IRELAND

(FROM OUR OWN CORRESPONDENT)

SCHOOL ATTENDANCE AND MEDICAL CERTIFICATES

SINCE the School Attendance Act became law in the Irish Free State a few years ago difficulties have arisen from time to time as to the liability of dispensary medical officers to give certificates of illness in regard of children under their medical care. Officers of the Civic Guard, who are charged with the enforcement of the Act, frequently demand such certificates, and suggest that it falls within the dispensary doctor's duty to issue such certificates free of charge. There is no such duty on dispensary doctors and up to the present they have refused to issue certificates, and most magistrates have been satisfied with other evidence. Recently, as we learn from the daily press, the senior justice of the city of Dublin, in dealing with a prosecution for non-attendance at school, was informed that a dispensary medical officer, Dr. James Devane, had refused to issue a certificate as to the fitness or otherwise of a certain child to attend school. The justice issued a summons to Dr. Devane to attend court, and the latter explained that the issue of a certificate was no part of his duty, and urged that it was unfair that a doctor should be the only member of the community expected to give his professional services for nothing. If he gave one certificate free he would have to give thousands. In reply the justice said that unless Dr. Devane was willing to send a letter or a certificate he would have to issue a summons for his attendance. There is no doubt that a magistrate has power to compel the attendance in court of any member of the public, but it is not clear that he has power to compel a medical man to give professional evidence without the payment of a fee. It is to be hoped that any ambiguity on this point will be cleared up.

RETIREMENT OF A PUBLIC OFFICIAL

Disquietude has been caused in the public medical service of the Irish Free State, as well indeed as in the minds of the general public, by the summary compulsory retirement as from Dec. 1st of Mr. E. P. McCarron, secretary to the Department of Local Government and Public Health. The disquietude is all the greater because he was given only a few days' notice of his dismissal and was given no reason for such action, nor any information of the nature of any complaints made against him. Mr. McCarron, who is about 55 years of age, has been in the public service since he was a boy. Having had several years' service as one of the auditors of the old Local Government Board, he was chosen as secretary when the Department of Local Government and Public Health was established after the change of government. In the period since he took office the whole public health service of the country has been organised, and much of the work of this organisation fell on the shoulders of the secretary of the department. He was enthusiastic in all matters concerning health, both as regards public health administration generally and as regards the improvement of housing. Recently he gave much help toward the formulation and realisation of a scheme to encourage and endow medical research. Medical men who met him to discuss matters concerning health or the interests of the profession always found him an energetic, efficient, and very courteous official.

PARIS

(FROM OUR OWN CORRESPONDENT)

THE BOVINE TYPE IN TUBERCULOUS MENINGITIS

BETWEEN 1932 and 1936 E. Lesné, A. Saenz, M. Salembiez, and L. Costil have investigated 138 cases of meningitis in children who had not been given B C G, and who were treated at the Trousseau Hospital. The results of this investigation, submitted to the Academy of Medicine on Nov. 17th, constitute an indictment of the bovine type of tubercle bacillus. Eight of the cases could be dismissed, the culture of the cerebro-spinal fluid proving negative, and the clinical course of the disease showing it to be non-tuberculous and curable. Of the remaining 130 cases, 121 yielded the human type of tubercle bacillus on Löwenstein's medium, which, in the opinions of these investigators, is the best available, not only for the culture of tubercle bacilli, but also for the distinction between the human and the bovine types. In other words, the mere aspect of the culture gives a valuable clue to the type present, and information on this point is thus made available before the bacilli in question are injected into a rabbit. There were nine cases in which the bovine type of tubercle bacillus grew on this medium. As many as seven of these nine children were less than 5 years old, and eight had drunk raw cow's milk for a long time. Not one of these nine children had been reared in Paris, and nearly all of them had lived for a long time in the country. On the other hand, about three-quarters of the children infected with the human type of tubercle bacillus had lived in Paris or its suburbs, and only 10 per cent. had lived in the country. In the overwhelming majority of the human-type cases, contacts with other human beings suffering from tuberculosis were discovered, whereas among the 9 bovine-type cases there were as many as 5 with no family history of tuberculosis, and 3 in which information about contacts was not available. The authors of this report quoted Martel as stating that, in 1905, 5 per cent. of French cattle suffered from tuberculosis of the udder; and in one such case they have counted 100,000 virulent bacilli per c.cm. of milk. They concluded that the consumption of raw milk by children is to be deprecated under the conditions existing in France.

THE INTERDICTION OF MEDICAL PRACTICE AFTER THE AGE OF 65

It is symptomatic of the atmosphere in which the Pomaret scheme for the compulsory retirement of doctors at 65 is discussed that many if not most of those that air their opinions on it refer to it as the Pomaret law. Now it is nothing of the sort. At present it is no more than a scheme—the draft of a Bill, if you like, but certainly not a fait accompli in the sense that it has been passed by both Chambers and put on the statute books. It is doubtful if it ever will be. For though the present Government already has a remarkable record for carrying through legislation of heroic tendencies, the Frenchman's capacity for absorbing revolutionary ideas reaches saturation point sooner than most of you on the other side of the Channel imagine; and when the matter is debated in the Chambers, every senator and deputy will be sure to have at his elbow, figuratively speaking, some old doctor reminding him of the innumerable doctors over 65 who are still worth their salt and of still more numerous doctors well under 65 who are not.

This point has been very ably argued by Dr. Marcou-Mutzner in a recent number of *Presse Médicale*. His plea is for natural selection instead of the blindfold selection exercised by a hard-and-fast age limit. As he points out, one man may be old at 50, and another young at 70. Even M. Pomaret himself seems to have been aware of the differences between the real age of a man and his legal or birth-certificate age; for he has made the concession of allowing a doctor on the staff of a Paris hospital and a professor of the faculty of medicine to remain at work till he is 70; and if he is a member of the Institute, he may go on working to the dizzy age, for ordinary men, of 75. It would be interesting to know if his concession to grand old men is biologically justifiable. Probably it is. In his argument for natural selection, Dr. Marcou-Mutzner maintains that the patients themselves know quite well when a doctor is deaf, absent-minded, forgetful, or shaky of hand; and they never forgive him if this last quality or disqualification spoils an intravenous injection. Whatever the technical age of such a doctor, these signs of premature or mature age put him on the shelf without the law having to be invoked. It is a pity that Dr. Marcou-Mutzner spoils an otherwise excellent argument by claiming that patients also know whether a doctor is familiar with recent events in his profession or not. This is surely asking too much of the intelligence of the average patient.

ACTIONS FOR DAMAGES AGAINST DOCTORS

From time to time Dr. J. Noir regales the readers of *Concours Médical* with the experiences of that excellent institution, the Sou Médical, which defends the interests of its members when actions are brought against them by unappreciative patients. These actions seem either to demonstrate remarkable stupidity and cupidity on the part of the patients, or tragi-comic stupidity on the part of a doctor. In one of Dr. Noir's cases, a certain Dr. X was called on to treat a patient suffering from a posterior dislocation of the shoulder, very difficult to recognise. The overlooked dislocation was not reduced, and permanent functional weakness of the arm ensued. The patient's husband brought an action against the doctor because his diagnosis had been incorrect, and because no radiological examination had been made. According to the expert evidence called, the difficulty of diagnosing such a lesion correctly was such that the error committed was altogether pardonable, all the more so because the doctor had recommended a radiological examination which the patient had obstinately refused. The husband's objection that he himself had never heard the doctor recommend a radiological examination was weakened by the admission that he had not been present at all the discussions between his wife and the doctor. The latter won the case. So far so good. But Dr. Y let the Sou Médical badly down. Summoned to the victim of an accident, he diagnosed a comminuted fracture of the humerus. An enormous effusion having formed, he recommended waiting till it was absorbed before he applied splints. The patient pleaded for a radiological examination, but the doctor insisted on its uselessness. Then he went away. Seventeen days after his departure, his locum tenens, blissfully ignorant of all that had happened, insisted on a radiological examination which showed no fracture at all. But there was a subcoracoid dislocation. It was reduced, but the patient developed progressive paralysis of the right arm. Now the patient was a distinguished artist, aged 50, and he was allotted 160,000 francs in damages. Hence Dr. Noir's advice "Never consider a radiological examination useless, particularly when a patient asks for it."

MEDICINE AND THE LAW

Lump-sum Accounts

In Little *v.* Nutter at Liverpool county court last week the judge made interesting comments on the medical custom of sending in bills without furnishing detailed particulars. The plaintiff, a Liverpool practitioner, had attended the wife of a cotton manufacturer from January to July, 1935, and sent in an account for £47 10*s*. The defendant said he was willing to pay what was reasonable, but he had never been given particulars or told what was the basis of the charges; it was not till Nov. 26th that he obtained explanations in the form of extracts from the doctor's case-book. The learned judge observed that the defendant was taking the view of a business man but was dealing with a professional man. The doctor was not a tradesman selling goods. "You cannot weigh up the services of a doctor in the same way as the services of a business man: in a case like this I think it is not possible to price each item." Judgment was given for the amount claimed with costs. Although the court thus found the rendering of a lump-sum account to be a reasonable practice, there are undoubtedly cases where a formidable and unexplained total, especially if presented after a substantial interval, sets the recipient thinking of excuses for non-payment.

Complaint of a Pork Chop

The gradual elimination of juries in High Court cases is giving the judges some awkward questions to answer single-handed. A member of the Royal Automobile Club had a lunch which included half a dozen oysters, a pork chop, some milk pudding, and some mineral water. Between 4 and 5 next morning he became ill and his regular medical attendant diagnosed food poisoning. The pork chop fell under suspicion and the patient eventually sued the proprietors of the club for damages. The illness was post hoc; the judge had to decide if it was propter hoc. A plaintiff must establish his case, and it is never an easy task to identify such illness with a particular item of food. The pork chop might well claim to be deemed innocent until it was proved to be guilty; the club kitchen arrangements were given an excellent character; might not the roast chicken which the plaintiff ate for dinner that evening have been the culprit? The defence threw out the suggestion that the plaintiff might be a carrier of germs which caused illness when he ate indigestible food. The judge said there was no evidence to support this theory. After not a little discussion of the Gaertner bacillus, the court felt itself on solid ground in accepting the diagnosis and the evidence of the plaintiff's regular medical attendant. Mr. Justice Singleton held that the plaintiff had proved his case and awarded him £625 damages.

Compensation for Miner's Nystagmus

In Richards *v.* Goskar the House of Lords has delivered a judgment which enlarges the liability of colliery companies to pay compensation to miners suffering from nystagmus. Richards, the appellant, was certified as suffering from miner's nystagmus and as being disabled from earning full wages at the work at which he was employed. He returned to his former work at his former wages, although he had not in fact recovered from the disease; he then again became disabled by the original nystagmus. The question in the case was whether he could rely on the original certificate (as he himself claimed) or whether (as the colliery company contended) he must obtain a fresh certificate of disablement as a condition of receiving compensation. As is well known, industrial diseases like miner's nystagmus entitle the workman to compensation as if they were industrial accidents. The disease is in Lord Atkin's phrase, a "notional" accident. In making the language of the Workmen's Compensation Act fit the case of an industrial disease, it was necessary to fix the date of the happening of this. The Act therefore stipulates that "the disablement . . . shall be treated as the happening of the accident." In the case of Richards, the county court judge felt himself obliged by previous decisions to hold that the disability to earn full wages was the accident. He consequently found himself unable to award compensation because, for some time after the original disablement, Richards was able to earn full wages at the employment in respect of which he was originally certified. This result, Lord Atkin pointed out, put the sufferer from industrial disease in a relatively worse position than the sufferer from industrial accident. Disability was not to be translated into "accident" for all purposes. The county court judge had taken too narrow a view of some of the decided cases. Richards was entitled to have his claim for compensation assessed by the county court judge. The appeal succeeded and the case was remitted to the county court for such assessment.

Workman's Death from Blood Poisoning

Another judgment delivered by Lord Atkin in a workmen's compensation case some weeks ago was of considerable interest. An electrician worked under the floor of the electrical installation at the Lancaster Infirmary. He had, in the course of his job, to lie for long periods on his back, resting his head on a dusty floor in the foundations. The atmosphere was so hot that the workmen took off their caps. When the man came home one night, he showed his wife a sore place on the back of his head; he said he thought he got it at his work two days before. Making light of it, he continued at work till he had to stay at home owing to pains in the chest and head. The doctor found he had bronchitis in both lungs and inflammation of the scalp tissues. He died in the infirmary of septic meningitis and septic pneumonia. Post-mortem examination indicated that the infection causing the septic condition entered through the break in the skin of the head. The county court judge accepted the probability that the injury was sustained at the work, and awarded compensation to the widow and infant daughter. In the Court of Appeal Greer and Scott, L.JJ., said there was no evidence that the accident arose "out of and in the course of the employment." In the House of Lords Lord Atkin said the case was entirely one for the county court judge, and there was evidence to support his finding. He himself, he said, would unhesitatingly have come to the same conclusion.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index.

BY A CHRONICLER

II

IN the period vaguely named the Dark Ages there was no assembling of scientific observations bearing on medicine that was open to any general inspection, such as could exist in classical times, when industrious scribes met the situation. Our debt to them is apt to be overlooked. Down to the time of printing the manuscript—including here graven plates, potsherds, clay and wax tablets, parchments and papyri—filled the place now occupied by print. These manuscripts were stored in libraries where the rolls could be seen, and in this way the works of Hippocrates, Celsus, and Galen, especially of the last, were open to consultation. But in later times the monastic records, representing the fine work of the Church in preserving culture throughout evil times, were not similarly available.

* * *

The word newspaper came into use in the reign of Charles II, the earlier periodicals being the production of news-letter writers or "intelligencers"—men retained either by private and important individuals or perhaps by a group of such. These news-letters or "corantos" contained no medical information and were made up of the propaganda of various political parties. The word is the same as *courant* or current, and in the form of "courier" became a frequent title for newspapers at the end of the eighteenth century. Apart from the private correspondents the writers were not held in high esteem judging from this passage from *News from the New World: Discovered in the Moon*, a masque played before King James in 1620 and written by Ben Jonson. The chronicler or reporter, the factor or publisher, and the printer discourse as follows:—

> *The Chronicler:* I am for matter of state, gentlemen, . . . to fill up my great book, which must be three reams of paper at least . . .
>
> *The Factor:* I do write my 1000 letters a week ordinary sometimes twelve hundred, and maintain the business at some charge . . . I have friends of all ranks and of all religions for which I keep an answering catalogue of dispatch, wherein I have my puritan news, and my pontifical news . . . (and points to the lies that get into print).
>
> *The Printer:* Sir, they (the stories) were made for the common people; and why should not they ha' their pleasure in believing lies are made for them, as you have in Paul's that make them for yourselves.

It will be seen that by the style of "A Chronicler" I assume no high status.

A quotation from "A Book of Characters," published in 1631, leaves even less doubt as to public opinion of the journalist of the period, though probably this was not so much the opinion of the public as that of the Star Chamber. For when the corantos began to be circulated they attracted the unfavourable notice of that Court, as licensers of printed work. The Star Chamber had a hard task, for the corantos had an established popularity. The mere titles of them make up six or seven columns of Muddiman's "Hand-list of Newspapers," and indicate that the subjects were purely political. In their later form they were weekly pamphlets priced at one groat, equivalent to-day to about one shilling. They came to an end in 1642 amid a crowd of "Diurnals," the word derived from Acta Diurna, and in 1643 a Board of Censors for the press was set up by Parliament.

A journalist of a period some ten years before the suppression of the corantos is thus described by Richard Brathwaite, a forgotten poet and author of "Barnabee's Journal":—

> "The Coranto coiner is a state newsmonger and his own genius in his intelligencer. His mint goes weekly and he coins money by it. Howsoever the more intelligent merchants do jeer at him, the vulgar do admire him, holding his novels oracular, and these are usually sent for tokens or intermissive courtesies between city and country. He ever leaves some passage doubtful as if there were intimate secrecies of state, closing his sentences abruptly with 'Hereafter you shall hear more.' He carries his table-book about with him; he does not pull it out publicly. Paul's in his walk in winter, Moorfields in summer, where the whole discipline, designs, projects, and exploits of the States, Netherlands, Poland, Switzerland, Crimchana and all are within the compass of one quadrangle walk most judiciously and punctually discovered. Thanks to his good invention he can collect much out of very little."

We have here two uncomplimentary descriptions of the press man of the seventeenth century, prepared to write from the town to the country, or from the country to the town, upon information picked up through gossip. Certainly St. Paul's Cathedral and churchyard, and the neighbouring open country of Moorfields, were admirable places in which to gather the spirit of the day from gossip, and thus ascertain what topics would make acceptable subjects. Note in the allusions to Tartary and China a hit at the omniscience pretended to. The highest development of the news-letter or coranto was reached under Henry Muddiman, ancestor of the author from whom I have just quoted, and his letters were the origin of the *London Gazette*, where to-day your name can still be printed on the occasion of your elevation to a peerage or your submersion in a bankruptcy.

* * *

The corantos did not attempt to give medical information; they were political propaganda. The first definite medical journal to be published in this country was the *Foreign Medical Review*, and a natural guess would be that we have here an example of the idea that "they do things better abroad." The idea still has force—"A man at Bad-Zwieback gave him glasses and he can see better than ever"; "She went to such a clever doctor at Brioche les Bains and he put her right at once"; "He's consulting a fellow at the Kalbsbraten Clinic who has a wonderful treatment"—are not such remarks to be heard at every social function? Are they not particularly frequent at informal gatherings like sherry parties, where men and women incline to use medical treatment as a subject for conversation? As a matter of fact, they did do these things better at that time abroad, for when the *Foreign Medical Review* was launched, there were numbers of continental medical journals. How many can be seen in a list contributed to the *Bulletin* of the Institute of the History of Medicine, published by the Johns Hopkins University in the supplement of July, 1934. The list was compiled by Dr. Fielding Garrison, the well-known medical historian. The detailed enumeration occupies 40 quarto pages in double columns, and in this long array will only be found some seven or eight English publications, including transactions of societies, which are in no sense journals.

The *Foreign Medical Review* ran for ten years at the end of the eighteenth century and it has always, to me, been a matter for surprise that no medical journal made its appearance some years earlier under the editorship of a great man of letters, both a doctor and a journalist. For it first appeared in 1779, when Dr. Tobias Smollett's political journal, *The Briton*, had already seen daylight and Smollett's medical experience, knowledge of affairs, and zeal in the pursuit of what interested him would have made of him an ideal pioneer of medical journalism. We can see in his novels how exactly he estimated many professional positions; he made no name in the medical profession, and, oddly I think, his regular employment of assistants on his historical works never suggested to him the idea of collecting a staff for the production of a medical journal.

The *Foreign Medical Review* had slight support, but its pattern of extracting passages from medical works was followed by successors, where the distinctly medical appeal was often lost, medicine being treated as a branch among others of general science. The descriptions on the title-page of the first volume of these publications, and the wording of the first prefaces are remarkable for their promises, but a glance through the volumes shows how little attempt was made to keep them. There seems generally to have been great reliance upon a title and here changes were made which sometimes render a paper difficult to trace. Brief perusal of the first volumes of each paper shows that the fare provided could satisfy no appetite for contemporary information; yet things will catch the eye which to-day have a professional interest. The first volumes now noted are in the library of the Royal Society of Medicine.

* * *

Foreign Medical Review, 1779.

> "An account with extracts of all new books published on natural history, botany, materia medica, chemistry, anatomy, surgery, midwifery, and the practice of physic in every part of the Continent of Europe; together with intelligence of new and interesting discoveries."

What do we get in return for this handsome offer? Reviews transcribed from German and Swedish originals, observations on arnica by two Viennese doctors, an introduction to the study of midwifery by the physician to the Landgrave of Hesse-Cassel, an essay in Latin on conium, an article on the Swedish pharmacopœia, and belated obituaries of Haller (ob. 1777) and Linnaeus (ob. 1778). Haller is described as "Lord of Goumens le Jux, Feudi in Eclagens, and Knight of the Polar Star." How Thackeray would have rejoiced in this description, which would have exactly met the case of a grandee at the Pumpernickel Court.

London Medical Journal, 1781. By a Society of Physicians. The preface points out that the backing of the venture is such that success is deserved. Like the *Foreign Medical Review*, extracts from foreign literature formed the main contents. The title was changed to *Medical Facts and Observations*, but either the facts were not so or the observations were unarresting, for the career of the paper was a short one.

Medical Chirurgical Review, 1820, adding "Journal of Medical Science" in 1822 and reverting to the shorter designation between 1824 and 1828. In 1828 the title became the *Medico-Chirurgical Review and Journal of Practical Medicine*, and this designation was preserved for the next 19 years. The first number is described as "a concise account of the various publications in different languages on medicine and surgery" and as "a continuation of the Medico-Chirurgical Journal"; I have not been able to identify with certainty this predecessor, and the unsigned preface makes no reference to parentage. The journal was published under its different titles for very many years, and the first number promised well. The original editors were "Dr. William Shearman, Dr. Shirley Palmer, and James Johnson, Esq., surgeon to H.R.H. The Duke of Clarence's Household." In this volume we find a clinical case of a "Fœtus found in a Boy" by Nathaniel Highmore, an article on Diseases of Females by Charles Mansfield Clarke, and a review of Orfila's celebrated work on poisons. The article by Sir Charles Clarke was probably a recent contribution, the reverence for titles in early medical journalism being such that, had he secured his F.R.S. or his baronetcy at the time, the distinctions would have been noted. Clarke's medical record reads singularly to-day. A student under Hunter at St. George's Hospital, he seems to have gained no professional qualification but was awarded the Lambeth M.D.; he must, however, have done something to justify a scientific reputation for he was made F.R.S. before he was 40, appointed physician to Queen Adelaide, and created a baronet. There was no hurry in publishing the review of Orfila's "Traité des Poisons," that finest of single-handed efforts in practical therapeutics, for the book had been out nine years. Nathaniel Highmore, of antrum fame, had been dead 100 years; perhaps the contribution was from a descendant using an honoured name. The paper had a long life and its editors resented the appearance of *The Lancet*.

Medical and Physical Journal, 1799. Conducted by T. Bradley, M.D., and A. F. M. Wilich, M.D., and continued as the *London Medical and Physical Journal*, in a new series under the editorship of Dr. Roderick Macleod. The claim made in the first number is that the journal will "Contain the earliest information on subjects of medicine, surgery, pharmacy, chemistry, and natural history, and a critical analysis of all new books in this department of literature." The first number suggests that a real endeavour was made to redeem some of the pledges, and a good deal of ground was covered; the journal did not obtain any substantial adherence, but lived and died under the same title.

The *Philosophical Magazine*, 1798. The magazine incorporated a predecessor which I have not seen called the *Journal of Natural Philosophy, Chemistry, and the Arts*. The founder proposed to treat of "the liberal and fine arts, agriculture, manufactures and commerce." He was one Alexander Tilloch, a learned and ingenious man. A journalist and editor of a lay paper, he was better known for his practical interest in printing. He was the inventor of a process for engraving the notes of the Bank of England, which was not adopted, though later the method which met with favour appears to have been virtually the same. He also had views on the Apocalypse, there following the example of Sir Isaac Newton.

Alexander Tilloch was a business man, and made no suggestion that he proposed to pursue art for art's sake; his object was, he said, to communicate such teachings of art and academic knowledge as can be useful in material pursuits, while his intention to take his matter from all convenient sources is candidly expressed by a quotation on his title-page from Justinian, which may be translated thus: "Neither is the texture of the spiders' web better because it is produced from themselves, neither is our texture the worse because like the bees we take our draughts from foreign sources." Other subjects were better handled than medicine. In the first bound volume, which comprised the output of four months, we have an article headed 'Medicine' which announces that "improvements have been made in the German key for extracting teeth." Another article, headed 'Surgery,' is a note on "The retardation of age by preventing the accumulation in the tissues of calcareous matters."

In a later volume we get Dr. Perkins's discovery of the influence of metal tractors in removing many of the diseases of the human body. This communication has a modern flavour when the benefits attributed by ardent proselytes to osteopathy are recalled, a metallic medium being substituted for the erudite touch. Dr. Perkins was an American and made therapeutic claims to which some disciples within the ranks of the medical profession subscribed; but official medicine repudiated the work because the technique and conclusions were based on nothing that was comprehensible upon established scientific grounds. His procedure was "to apply externally to parts affected with diseases, metals and compounds of metals formed into instruments of various forms and sizes termed tractors." Dr. Perkins's assertion was that on drawing them lightly over parts affected these tractors could (in his own words), "remove typical diseases of the human body where an extra degree of nervous energy or vital heat was present unless such disease was situated in some of the internal viscera too remote from the part where the instrument could be applied." Then follows a list of diseases—wherein are included rheumatism, gout, erysipelas, lock-jaw, inflammatory tumours, painful burns, and tooth-ache—which are amenable to treatment by the tractors, the evidence of savants and grateful patients being added. The editor of the *Philosophical Magazine* remained unimpressed, considering that the asserted presence of some galvanic action was unconvincing. Incidentally, it was conversion to this sort of therapy that ruined Dr. John Elliotson, the learned physician at University College Hospital to whom Thackeray dedicated "Pendennis."

Annals of Philosophy, or *Magazine of Chemistry, Mineralogy and Mechanics, Natural History, Agriculture and the Arts*, 1813. Edited by Thomas Thomson, M.D., F.R.S., member of the Imperial Medico-Chirurgical Academy of Petersburg. The first preface states that the intention is to publish "memoirs on particular branches of science, and the transactions of Philosophical Societies." A new series began in 1821 and was continued as *The Philosophical Magazine and/or Annals of Philosophy;* this was an amalgamation with the *Philosophical Magazine.* The editors now were Richard Taylor, F.S.A., and Richard Phillips, F.R.S. The magazine was continued as the *London and Edinburgh Philosophical Magazine and Journal of Science*, and after Vol. 16 "Dublin" was added to the title. The annals had very little of medical interest, references to medicine being thrown in now and then, probably to justify the comprehensive range, but the first volume has a paper on diabetes by Dr. William Henry, F.R.S., author of an "Epitome of Chemistry." This was a really distinguished medical contributor. A Manchester general practitioner, he went to Edinburgh, attended courses in chemistry, and when quite young made important communications to the Royal Society. His "Epitome of Chemistry" ran through eleven editions in the next twenty-eight years. Henry's medical essay forms a link with contemporary journalism, for in an early issue of *The Lancet* there is a long and appreciative review of his experiments on the disinfecting powers of increased temperatures.

London Medical, Surgical, and Pharmaceutical Repository. The magazine was started in 1814 and the words "Surgical and Pharmaceutical" were soon dropped from the title. The first editors were George Mann Burrows, M.R.C.S., William Royston, F.L.S., and Anthony Todd Thompson, F.L.S. Burrows, who appears to have been the real founder, was specially indefatigable in securing the passage of the Apothecaries Act in 1815. He became a leading authority on insanity. Anthony Todd Thompson was also an interesting man; the son of an American Colonist he graduated in medicine at Edinburgh, and gained a large practice in South London. He was young when he joined Burrows in the direction of the *London Medical Repository*, but he had already written a conspectus of the pharmacopœia which had run through several editions and proved to be the framework of the pharmacopœia as we now know it. He became professor of pharmacology and therapeutics in the new University of London and was a frequent contributor to the early *Lancet.* In 1882 the *London Medical Repository* came under the editorship of James Copland, later the author of the "Dictionary of Practical Medicine." Copland was a divinity student originally, but turned to medicine and graduated at Edinburgh. He took an appointment as medical officer on the Gold Coast where his experiences of disease and native manners were sensational. He is depicted by Sir Norman Moore as a man of extraordinary industry and perseverance, but without the gift of discrimination. The *London Medical Repository* was more definitely professional in its contents than any of its predecessors, and there may be noted in its pages the first Hunterian Oration, which was delivered by Sir Everard Home, the untrustworthy curator of Hunter's manuscripts, while there is also an article by Baron Larrey, Napoleon's great military surgeon. The *London Medical Repository* marked a real intent to produce a medical journal. The predecessors aimed to be scientific encyclopædias wherein medicine would be included.

* * *

The Lancet made its appearance in 1823, and with it medical journalism assumed a new shape. The biographical notes on the founders or editors of its predecessors show that they were on the whole a distinguished group, and that the failure of their journals was due simply to their conception of what their readers might want. They had a touching belief in the influence of titles, and as far as medicine was concerned made huge promises which they could not fulfil.

PUBLIC HEALTH

The Nation's Health

THE annual report of the chief medical officer of the Ministry of Health is a personal commentary on the medical matters which came before the Ministry during the year under review; it is not the official report of the Ministry, which is issued separately beforehand.[1] It consists of statistics and facts which the Ministry supplies, along with comments upon and criticisms of those facts for which the author alone is responsible. The 1935 report[2] is the first for which Sir Arthur MacNalty, as chief medical officer, is solely responsible. From his published works and from his experiences we should have expected that Sir Arthur's attitude towards preventive medicine would differ somewhat from that of his predecessor, Sir George Newman, for he is more of a clinician than a sanitarian, and approaches public health as a physician rather than as a biologist. As an account of the progress of medical science during 1935, his report should appeal strongly to the medical profession as a whole; but members of the public health service will find less in it to interest them unless they are engaged in specialist activities.

A NEW INTERPRETATION

In an introductory note Sir Arthur MacNalty recalls Sir John Simon's statement, made forty-five years ago, that the science of preventive medicine is advancing partly because the causes of disease are becoming more exactly understood and therefore more readily prevented, but even more largely owing to the creation of new methods of pathological research. This was the beginning of a new and wider interpretation of preventive medicine. The dividing line between preventive and curative medicine, Sir Arthur remarks, grows fainter and fainter, and in many instances has virtually disappeared. He illustrates the disappearance of this detachment by the recent trend of events. The tuberculosis work of local authorities includes both prevention and cure. In the child welfare and maternity services the clinician works side by side with the hygienist. The insurance medical service is designed for the prevention as well as the treatment of disease and is working to-day in closer relation with the public health service. The Local Government Act of 1929 provided for more intensive coöperation between the voluntary hospitals and the municipal hospital resources. And, finally, the problem of proper nutrition, to which an advisory committee of the Ministry has given attention for the last five years, was not, he reminds us, a new interpretation of preventive medicine. In 1862 the Privy Council inquired into the nourishment of distressed operatives in Cheshire and Lancashire, and in the following year Dr. Edward Smith, F.R.S., observing that insufficiency of food does not nearly so much affect the married worker as it affects his wife and children, attempted to frame a minimum daily diet. We are still, Sir Arthur concludes, working at the same task, but with a coöperation of State and voluntary effort which was then neither available nor contemplated.

THE YEAR 1935

England and Wales was freer from disease in 1935 than in any other year of which we have records. Not only was the incidence of disease low, but severity was low also and, what is still more satisfactory to the medical profession, the year showed evidence, always difficult to obtain, that treatment was unusually successful. Of this we may quote two instances. The notifications of ophthalmia neonatorum numbered 4359; they were up to the average, but total blindness resulted in only four. Puerperal sepsis and pyrexia with 8142 notifications gave 1006 deaths against 8431 notifications with 1212 deaths in 1934. Incidentally, it may be noted that these figures show that the Puerperal Pyrexia Order of 1926 is not being properly carried out, for the fatality of notifiable pyrexia (including fever) is not 1 in 8, nor in fact anywhere near it. There was no outstanding disease in 1935 and few epidemics of importance, though dysentery, the typhoids, and salmonella showed slight rises from the low levels of recent years, and there was a small crop of five cases of botulism, which is the second outbreak of the disease in British public health history.

EXPERIMENTAL EPIDEMIOLOGY

The importance of the work on experimental infections in herds of mice carried out by Profs. Topley and Greenwood at the London School of Hygiene and Tropical Medicine during the past 12 years has gradually obtruded itself more and more on our profession. With the inauguration of a special chapter of the report, dealing largely with this work, the subject of experimental epidemiology may be said, in the words of our gossip-writers, to have arrived. Based chiefly on the account of these experiments recently published,[3] a clear and charming description is given of the results and of the conclusions which may by analogy be inferred in human crowd infections. Put very briefly, these are: (1) That disease once introduced will not die out naturally as long as fresh immigrants enter the herd. (2) That survival of intense exposure to infection confers no absolute immunity on the survivors: the resistance acquired fluctuates widely. (3) That biological immunisation confers a slight advantage on the immunised in a bacterial disease (mouse typhoid) and a much greater advantage in a virus disease (ectromelia): hence in man environmental improvements rather than vaccination would appear to be the method of election in the prevention of disease such as enteric fever, while preventive inoculation would seem to be the more hopeful line of advance in virus diseases. (4) Secular variations in the course of herd mortality cannot yet be satisfactorily explained but the authors lean towards causes in the biology of the herd rather than in "cosmical theories of epidemic constitution."

Included in the same chapter of the report, though not coming so strictly under the heading, are accounts of studies on the spread of streptococcal infections, particularly of secondary infections by streptococci of a different type in cases of scarlet fever; and of epidemiology in country practice, based on the paper read by Dr. W. N. Pickles of Aysgarth to the section of epidemiology of the Royal Society of Medicine.[4] A plea is entered for similar valuable work to be recorded before the isolation of rural communities is completely destroyed.

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[1] See THE LANCET, Oct. 31st, p. 1077.

[2] H.M. Stationery Office. Pp. 238. 3s.

[3] Medical Research Council, Spec. Rep. Ser. No. 209, 1936.

[4] See THE LANCET, 1935, i., 1276.

TUBERCULOSIS

The chapter on tuberculosis is the record of a year in which the incidence and fatality of tuberculosis reached low records surprising even to the sanguine, and to his study of this satisfactory material Sir Arthur MacNalty brings an unrivalled knowledge of the disease in all its bearings. The index, which is the crude death-rate from all forms of the disease per million living, sank to 718 from 763 in 1934, and the notifications to 55,148 from 59,564. Sir Arthur does not enlarge on the remarkable fall in tuberculosis, for he sees many ways in which our services can be improved to give still better results, and though last year's death roll of 26,854 is less than half what it was in the beginning of the century it is still an intolerable debt to a preventable disease. The standardised death-rate has fallen from 3478 per million in the middle of the nineteenth century to 687 in 1935 almost uninterruptedly and there seems to be no reason why the fall should not be continued. From the report it is clearly the writer's view that the fall will not continue of itself, but requires increased efforts to stimulate it. The tuberculosis service, he says, is "reasonably well organised" and proceeds to suggest ways in which it might be improved. There is no question of the soundness of the suggestions which can be inferred from his narrative, but the statement that 2540 of the new cases of tuberculosis in 1935 were not notified until after death may not bear the interpretation that its context implies. For how many of these were tuberculous meningitis and other forms of acute disease where the diagnosis cannot be verified until the patient is dying, or dead ? Yet we must admit that the decline in notifications, though it keeps pace with decline in mortality, is "unsatisfactory in so far as it indicates that the service is not getting into touch with a materially greater number of patients in the earlier stages of the disease." The notifications and deaths suggest a much higher fatality than is actually the case. In the four years 1932–35, the dispensaries dealt with 262,000 patients, of whom 125,000 were suffering from tuberculosis. In the same years 117,000 persons died of tuberculosis. Though not all tuberculous persons do, or need, come under the dispensaries, it is obvious that a far larger number should do so and should come earlier, for but a small percentage of the population can afford to go through tuberculosis without the help of the official service. More intimate working of tuberculosis officers with general medical practitioners is required. This is generally stated as "increased assistance of practitioners" (Sir Arthur uses this expression) which suggests all take and no give, and is not an ideal relationship. When the tuberculosis service started, the vastness of its problems precluded our doing all that in those days we knew we ought to have done, but as the cases have shrunk to manageable numbers we should be able to do more for them, and certain provisions, such as efficient X ray instalments and machinery for lung collapse therapy, with experts to use them, which were not available twenty years ago, are reasonable expectations in every dispensary to-day. "No tuberculosis service," Sir Arthur says, "can to-day be regarded as entirely efficient which does not include adequate facilities..." He knows that not all have got them; the implied suggestion is that they should hasten to install them.

MATERNITY AND CHILD WELFARE

This chapter is the happiest one in the report. The lowest infantile mortality on record, and a maternal mortality which for the first time in recent years shows a substantial reduction, supply encouragement, and the Midwives Act, 1936, though it has not yet come into force, offers good food for hopeful speculation. Discussing the Midwives Act, Sir Arthur evidently expects the independent midwife to disappear and the whole of midwifery to become "an organised service . . . under the supervision of a superior officer. She (the midwife) will be an integral part of the public health service . . ." We believe this may, and in some districts will, happen, but the Act does not say that it must, nor does it give power to enforce it. The short reference to the maternal mortality question is sound and reasonable, although a longer commentary on the confidential reports on individual maternal deaths would have been welcome. The statement that in 50 per cent. of maternal deaths there is an avoidable factor is still awaiting explanation which can only come through the Ministry's scrutiny of these reports. It may be that in the sentence "it would be helpful if the investigator would more often indicate his conclusions as to any lack or inadequacy of service . . ." we find the reason why the reports do not offer material for settling the question. The prominence given to maternal mortality in the lay press has caused some fear in the popular mind that childbirth is too dangerous to be risked; Sir Arthur mentions this risk of fear and says truly "There is no need of fear." He could have added that since the publication of the departmental reports which raised the alarm the numbers of births has actually increased to the extent of causing a slight but appreciable rise in the birth-rate since 1933, and this in spite of the fact that the proportion of women capable of child-bearing in the population has fallen. It seems that though the propaganda may in part have been injudicious it has engendered rather more confidence than fear. The final sentence in the section on anæsthesia in normal childbirth (p. 64) runs "A midwife working alone cannot maintain asepsis, watch the progress of labour and deliver the child, and at the same time administer an anæsthetic." If this is intended to suggest that the use of the Minnitt apparatus is impracticable for midwives in the home it must have a profound bearing on the future of the midwifery service.

Small-pox at Oldham

In the past few days four cases of small-pox have occurred at Oldham. The first was that of an unvaccinated married woman, between 40 and 50, who worked in the cardroom of a cotton-mill in Chadderton. The other three are those of the woman's husband, who was vaccinated in 1916; her son, aged 15, who had never been vaccinated; and an unvaccinated woman who had been in contact with the original case. All these patients have been removed to hospital. The diagnosis of small-pox in the first patient was not established sufficiently early to ensure the successful vaccination of contacts, of whom there were at least 98 in the woman's place of work and 12 at her home, and arrangements have been made to keep them under daily supervision.

The original case was one of variola major, of rather severe type but not confluent. No human source of infection has been traced, and the infection was probably conveyed in the raw cotton which this patient handled. Cotton as a vehicle of infection of small-pox has frequently been suspected in the past, and in 1913 cases were reported in Oldham probably caused in this way.

OBITUARY

EDGAR HARTLEY KETTLE, M.D., F.R.C.P. Lond., F.R.S.

PROFESSOR OF PATHOLOGY AT THE BRITISH POSTGRADUATE MEDICAL SCHOOL

A VERY grave loss to British and indeed international medicine is caused by the untimely death of Prof. Kettle which occurred at his house in London on Dec. 1st. Always a delicate man, he had a serious operation some ten years ago from which, however, he made a successful recovery; but a recurrence of the symptoms two years ago necessitated a further operation which was again successful, though recovery was impeded by an unforeseen, and therefore unpreventable, complication. While obviously remaining in delicate health, his enthusiasm for, and high conception of, his duties at the Hammersmith school kept him in full work until the commencement of his short final illness.

PROF. KETTLE

[Photograph by Russell

Edgar Hartley Kettle was the son of Edgar Kettle, who married the daughter of Edward Hartley of Chipping Norton. He was educated at Skipton School, where the head master—a wrangler—was his uncle. His school-days were marred by a series of breakdowns owing to constant trouble in the knee, and at the age of sixteen he was admitted to St. Mary's Hospital, when the joint was excised by Edmund Owen. A curious reaction to environment then happened, for the patient told Owen that he had decided to go in for medicine. Owen's natural response—that he seemed particularly unfitted for such a career—gave Kettle, who was that sort of boy, as he afterwards became that sort of man, the exact stimulus to persevere in his intention. He entered St. Mary's Hospital, gained a scholarship, and during his course as a student received prizes. He passed the examination for the primary fellowship of the R.C.S., but never entered for the final examination, feeling that it was necessary to begin earning at once. He became temporary house surgeon at the French Hospital, being unqualified at the time, and there met J. A. Murray who interested him in cancer research. He had good grounding behind the impulse for pathological work, for while serving as clinical clerk and dresser at St. Mary's he had spent much time in the laboratory. He was appointed demonstrator in pathology at the hospital, and graduated M.B., B.S. Lond. in 1907. He remained for a further year as demonstrator and assistant pathologist, when, on the invitation of Alexander Paine, he went to the Cancer Hospital where a new pathological department had been built. He worked here for four years, finding opportunities during the last year to study continental methods in the laboratory at Freiburg under Aschoff. In 1912 he went back to St. Mary's as first assistant pathologist to the hospital, and assistant lecturer in pathology, later being joint pathologist with Sir Bernard Spilsbury, and finally coming into sole charge of the department.

He remained for twelve years at St. Mary's, years which included the war period, and Kettle felt bitterly that his stiff knee rendered him quite unfitted for active service abroad, but he discharged highly valuable duties at home. The laboratory at St. Mary's became the hub of the activities of a great school, this being specially marked as men came back on leave, and as the problems of the sick and wounded became urgent. He devoted himself to filling the gaps in the depleted staff, carrying on his work as pathologist, teaching the few remaining students, and acting for a period as resident obstetric officer. He considered that the practical insight thus acquired proved useful later in many directions. At the same time he was writing a book on the "Pathology of Tumours," which appeared in 1916. He was appointed consulting supervisor of the laboratory at the Third London General Hospital at Wandsworth, spending the mornings there and the afternoons and evenings at St. Mary's. At St. Mary's by this time, further responsibilities of teaching fell on him through the admission of successive batches of women students. He had, it may be said, been opposed to the policy of their admission in the first instance, as may be seen by his editorial articles in *St. Mary's Hospital Gazette,* but when the opposite decision was taken, both Kettle and the paper which he was editing gave the women a cordial welcome.

The ability for organisation displayed by Kettle at St. Mary's and elsewhere, no less than the scientific standard of his work, marked him out for advancement, and in 1924 he was invited to take up the position of professor of pathology and bacteriology at the Welsh National School at Cardiff. Here he had abundant opportunities to exercise the talents he had already displayed. The School was in a state of considerable disturbance at the time of his appointment, disputes—sometimes of an acrimonious character—having arisen between the University of Wales and the University College of South Wales and Monmouth as to the control of the medical school. Both diplomacy and hard work were needed to establish friendly relationships and secure the necessary machinery for teaching the students; but by the time Kettle left Cardiff after a three years' tenure of his post, the school was established in new buildings, while the difficulties had been surmounted.

In 1927 there came for him the commencement of six years' work which he would often refer to as the happiest period of his life, for on the retirement of Sir Frederick Andrewes he was appointed to the chair of pathology of the University of London, held at St. Bartholomew's Hospital. He was unable to take up the appointment immediately for at this time he had a recurrence of the ill-health against which he had struggled all his life, but six months later he entered on his duties, and soon felt, in his own words, "part and parcel of Bart.'s." His high and tried qualities as teacher were at once appreciated. His acumen in and flair for research were demonstrated over and over again, while his admirable gift for friendship came into full play with colleagues and students alike. The wide vision displayed in dealing with pathological problems was found to be equally evident in his ideals of medical education, and in his views of the part which medicine ought to play in all public relations. The expert found in him one who could appreciate difficulties and find solutions; those in whom the spirit of research was being kindled looked immediately to him for guidance; while the students as a body saw in him a friend, as sympathetic with their play as with their work. He was elected president of the Students' Union, and was so certain of remaining at Bart.'s for the rest of his professional life that he presented his journals to the library.

In 1934 he was appointed professor of pathology at the British Postgraduate Medical School at Hammersmith, leaving St. Bartholomew's with great regret; he came to his new duties distinguished for researches into malignancy in all phases and silicosis, and also as a director of research. He proved to be an unqualified success in a post which carried with it great opportunities, but with the responsibility for devising a scheme of performance to meet very diverse requirements. Those entering on a course at the school would be doing so from many varying motives, and the school had to provide an inclusive programme to meet their wants—to give instruction from the latest angle and to resume accepted knowledge in its modern phases, and at the same time to pursue the paths of research, in themselves pointing in multiple directions. Thus there was required, especially at the beginning of the new undertaking, industrious supervision, careful discrimination in the choice of a staff, and a resolution and temperament which could recognise the aspirations and the difficulties of all concerned, colleagues and students alike. Kettle was immediately recognised as the ideal man for such a post; he created confidence and established unity of design, while recognising the part in a live concern that must be played by conflicting interests. His simplicity and good nature never interfered with his shrewd vision, and without a trace of pretentiousness or of professorial manner, he made it clear from the beginning that only a man's best would ever satisfy him.

Kettle's contributions to pathology were numerous and always valuable and pertinent—he never wrote with any idea save to advance knowledge. His first publication in 1912 dealt with carcinomatous metastases in the spleen. In the succeeding years he published many papers dealing with neoplasms of various types, among which his study of tumours rising from the endothelium deserves particular mention. In 1916 he published his classical monograph on the "Pathology of Tumours." In this book he collected and summarised general information on the subject of tumours in a succinct and readable manner, adding at the same time critical notes upon the more theoretical and speculative considerations. He presented the main theories of causation concisely, and in dealing with the experimental side of cancer gave an informing account of the work done up to that day in the study of transplanted tumours in animals. In the description of the various groups of tumour under accepted classification many illustrations were supplied, reproducing microscopic sections for the most part from specimens observed by himself, while the section devoted to special pathology in accordance with regional incidence was also fully illustrated. Money was short with Kettle during the war period, while his industry was unceasing. He typed the whole book out in the evenings, and, having studied Ford's technique of making drawings of microscope preparations, he executed all the beautiful figures himself. A second, and enlarged, edition was published in 1921.

His interests were not confined to this aspect of pathology. Almost synchronously with his first paper on malignant neoplasms, he recorded, in a conjoint paper in THE LANCET, his observations on the histology of experimental rheumatism; and, from the end of the war onwards, he devoted himself mainly to the study of the histopathology of infective processes, and particularly to those infections that could be studied experimentally in animals. He turned aside, from time to time, to study pathological processes of other types—his well-known paper on the Splenic Lesions in Some Cases of Splenomegaly Associated with Secondary Anæmia was, for instance, published in 1920, and he reported the occurrence of malignant change in a chronic duodenal ulcer in a paper in THE LANCET in 1930. But, from the day when he described the histopathology of gas-gangrene in the report issued by the Medical Research Council in 1919, he spent almost the whole of the time that he could devote to personal research work in the intensive study of various infective processes, and the influence on infection of various chemical agents, especially of silica. His earlier studies in this field, particularly in their broader aspects, are conclusively summarised in two papers on Inflammation and Infection published in THE LANCET in 1927. These illustrate very clearly the application of a method in which Kettle was a pioneer—the planned and deliberate use of histology as an instrument in experimental studies on animals as contrasted with its use for the elucidation of naturally occurring diseases in man.

His outstanding contribution to pathology was his study of silicosis and its relation to pulmonary tuberculosis. These investigations, on which he was still engaged at the time of his death, were recorded in a series of papers, the earliest of which was published in 1922, in collaboration with Gye, and the latest in 1934. In these reports the problem, in its various aspects, was developed systematically and in detail. In regard to the pathogenesis of the characteristic silicotic, or tuberculo-silicotic, pulmonary lesion, he was able, by an ingenious experimental technique in which various dusts, alone or in combination with killed tubercle bacilli, were injected intratracheally into guinea-pigs, to throw an entirely new light on the essential mechanism of the process. He found that the characteristic nodular fibrosis was readily produced by the combined action of the silica and the dead tubercle bacilli, but not by either reagent acting alone. This accorded well with his extensive experience of the histopathology of silicosis in man, which had led him to place increasing importance on the infective factor. While not denying that a varying degree of pulmonary fibrosis may be produced in man by silica dust acting alone, he concluded that the development of silicosis as a clinically obvious disease is almost always dependent on an associated bacterial infection, very commonly tuberculosis; and that each factor must be regarded as enhancing the effect of the other. He suggested that the term "infective silicosis" would most accurately describe the nature of the disease.

Coincidentally with his study of the histogenesis of the silicotic lesion, Kettle was using the experimental technique he had developed to examine the pathogenetic properties of a large number of different industrial dusts, keeping steadily in view the social as well as the laboratory aspects of his problem. This side of his work brought him into close touch with the mining community, and with other industrialists. He served on the subcommittee of the International Labour Office which discussed this problem at Geneva; and was one of the official representatives sent from this country to the International Conference on Silicosis at Johannesburg in 1930. His directness of thought and exposition enabled him to make clear to laymen the essential scientific aspects of a problem with which they were deeply concerned; and his work in this field afforded an admirable example of the best type of coöperation between medical science and industry.

Kettle never underrated the difficulty of experiments of the type with which he was concerned. He never jumped to hasty conclusions, and he was one of those too few experimentalists who appreciate fully the importance of numbers, and the necessity for using adequate controls. His recent election to the Royal Society was more than deserved.

The summary of Kettle's life explains his outstanding success and accounts for the admiring and affectionate tributes to him which have reached us. Two of these we quote, each from a leading colleague. "Kettle," writes one, "caught and retained the interest of his students, and won the confidence and affection of all who worked with or under him. He established the friendliest and most fruitful relations with his clinical colleagues, and did his utmost to make the pathological department of which he was in charge an integral part of the hospital and medical school. At the same time he was insistent that pathology had a life of its own—a life that had to be respected; and he became quietly, but absolutely, immovable if anyone attempted to act in disregard of its just and proper interests. He had a wonderful flair for telling good work from bad, even in those branches of pathology of which he had little personal experience; and this enabled him to select as his assistants those who showed real promise. This faculty was admirably displayed during the last three years of his life, when he had the opportunity of building up the new department of pathology at the British Postgraduate Medical School. In the post-war years he served on many academic boards and scientific committees, and on all he did good service. He was wise in the true sense of the word; and his views, when he expressed them, carried great weight, in part because he never failed to give due weight to the views of others."

"It took years of intimate friendship with Kettle," writes another, "to fathom the extent and depth of his learning which was, to mere acquaintances, disguised under his jesting manner. His lightness of touch was surprising and the superb way in which he gave papers or contributed to discussion was based upon the exactitude of his knowledge and the precision of its arrangement. The last paper which he gave to the Pathological Society this year was equal to his best, though at the time his friends, who knew how ill he was, sat in apprehension. He could, in the nimblest way, prick pretentiousness, and always with a good humour which left no sting, while his kindness, generosity, and sure judgment in human affairs displayed him as an affectionate and loyal friend."

A third tribute contains these words whose exact truth we in this office know: "Few in his position had less of the great man in their manner but more of greatness in the way they worked and lived."

Prof. Kettle married in 1918 Dr. Marguerite Pam, who survives him and to whom all sympathy will go out.

JOHN THEODORE CASH, M.D. Edin., F.R.S.

Dr. Theodore Cash, who died on Nov. 30th at his house in Hereford at the age of 82, was an outstanding figure in pharmacology. He was Regius professor of materia medica in the University of Aberdeen for 33 years, retiring in 1919. A Manchester man, he took his medical course at the University of Edinburgh, graduated M.D. in 1879, and thereafter saw much post-graduate work in London, Paris, Vienna, and Leipzig. At Leipzig University he worked in the laboratory of the celebrated physiologist, Carl Ludwig. We owe to Prof. J. A. MacWilliam the following account of his career.

"Before being appointed to the Aberdeen chair Cash had been closely associated in research work with Sir Lauder Brunton at St. Bartholomew's Hospital. At Aberdeen he was long a distinguished figure in the university and the city. He was the first pharmacologist to hold the chair; its former occupants, Harvey and Dyce Davidson, had been medical practitioners who had expended special attention on materia medica. From the first he devoted himself whole-heartedly to the welfare and advancement of his adopted university. A painstaking and effective teacher both in the lecture room and the laboratory, he was a keen researcher and a highly skilled experimentalist who made valuable contributions to medical science, among the most important being those concerning the nitrites and aconitine, published in the Philosophical Transactions of the Royal Society in 1894 and 1898, in addition to papers on other subjects in the *Journal of Physiology* and elsewhere. He received the F.R.S. so long ago as 1887, and later became LL.D. of Aberdeen and of Edinburgh. He was examiner at Oxford and for the Indian Medical Service. In the administrative work of the University of Aberdeen he took an active part, and he acted as dean of the medical faculty for a period of years; he also represented the university on the General Medical Council, and was a director of the Aberdeen Royal Infirmary in the work of which he was keenly interested. At one time he was president of the Aberdeen Medico-Chirurgical Society. In furthering the interests of the students he was always active—on the playing fields, on the river, and in their societies, especially their medical society.

"A keen sportsman, Cash's chief delight was in fishing, and he was a famous exponent of the art on Dee and Don and English and Irish rivers; his nocturnal achievements on the reaches of the Dee in good fishing weather were well known. The 'Prof.

Cash' salmon-fly has made his name widely known to devotees of the rod far removed from the walks of medicine; he also studied salmon disease. Some years before coming to Aberdeen Cash married a daughter of the Victorian statesman John Bright.

"Prof. Cash was a man of high public spirit, and he was endowed with an exceptionally keen sense of humour; a good 'mixer' he made many friends in different walks of life, by whom and by the large constituency of graduates who had studied under his guidance his memory will be cherished as that of a fine type of English gentleman who faithfully served his day and generation."

JOSEPH VAN SOMEREN TAYLOR, L.R.C.P., L.R.C.S. Edin., D.T.M. Liverp.

Dr. Joseph Taylor, who died recently at Thornbury, Bradford, was the son of Dr. Birdwood van Someren Taylor, a well-known medical missionary. He was born in Foochow in 1880, was educated at Manchester Grammar School, and proceeded for his medical studies to the University of Edinburgh. He took the double qualifications of the Edinburgh Colleges in 1904 and his first appointment was a medical officer at the Wakefield West Riding Asylum. He practised for a time at Grenada but in 1906 he obtained the D.T.M. of the University of Liverpool and came to Bradford. During the war he served in the R.A.M.C., was mentioned in dispatches and badly gassed in France. No doubt his experiences in the war permanently damaged his health, but none the less he lived the strenuous life of a successful general practitioner while he also took an active part in Bradford local affairs.

ALEXANDER MITCHELL, M.B., C.M. Edin.

Dr. Alexander Mitchell, a member of a family well known in Elgin and Aberdeen, died on Nov. 26th, having practised for some forty years in Old Aberdeen. Before entering medicine he served his apprenticeship as a bookbinder in Elgin, and, for a time, continued that vocation in Edinburgh, but, deciding to follow medicine, he entered the University of Edinburgh and graduated as M.B., C.M. in 1892. He then returned to Aberdeen and entered general practice where later he was joined in partnership by his brother, Dr. Peter Mitchell, upon whose death in 1929 he retired from practice. The brothers conducted one of the largest practices in the city, their long list of panel patients showing the public confidence which was reposed in them. Dr. Alexander Mitchell was a competent, genial, and charitable man, highly respected by those among whom he lived and worked. He had been in delicate health for several years.

JAMES ERNEST STRATTON, M.D. Lond.

Dr. James Stratton, whose death occurred on Nov. 30th as a result of an accident, was a well-known practitioner in Bermondsey and the district. He was born in 1876, and was educated at Wyclif College, Gloucester, whence he gained an entrance scholarship at University College Hospital, London. He graduated as M.B., B.S. Lond. in 1901, with honours in several subjects and was a gold medallist at the later examination for the M.D. He held house appointments at the Wolverhampton and Staffordshire General Hospital before settling in Bermondsey, where he came to hold a high position as a practitioner. He developed into an authority on the various forms of industrial disease present in Bermondsey and the environment, and was also prominent in much social work, being especially interested in education. He was chairman of the executive committee of the London branch of the Public Medical Service, and throughout his career showed himself a man of tried ability and fine character.

PANEL AND CONTRACT PRACTICE

Health Insurance, Remedial or Preventive?

At a conference of the Insurance Institute of London held on Nov. 28th, the Minister of Health remarked that the national insurance scheme had marked a new conception in our social and health provisions. To-day, he said, we had another great conception—that our health policy and plans must be more positive in character, that it is not enough to protect the individual or the community from disease, but that we must more and more be health builders. To-day there were great opportunities for sound and constructive health work. Emphasis had been laid in the King's Speech on the importance of securing the improvement and expansion of many of our health provisions and services, and the Government regarded it as one of the most important parts of their programme during their period of office. Since the Act of 1911 was passed nearly £600,000,000 had been expended on benefits. The benefits had no doubt been a protection to our workers in time of sickness and disablement, but it should not be overlooked that the Act also charged its administrators with the task of assisting in the cure and prevention of sickness. Some headway in this direction had been made. There was dental benefit upon which £25,000,000 had been spent. Ophthalmic benefit was becoming increasingly popular; it had already absorbed some £4,000,000. Medical benefit was now to be extended to young persons under 16 years of age. All this to the good but there was one factor which demanded anxious thought; throughout the whole insured population there was a continuing rise in the claims for disablement benefit. In one of the largest societies in the country an analysis of claims in a particular week this year revealed the fact that of all the members receiving benefit in that week 45 per cent. had been in receipt of benefit continuously for over a year. It was difficult to reconcile this with the fact that the general health of the nation had substantially improved. The whole matter needed careful examination, particularly when it was remembered that increasing strain on the resources of the scheme must restrict its development in the direction of prevention and cure of disease.

Surgery Visitation Again

Two more insurance committees have been considering the question of waiting-room and surgery accommodation. West Sussex had a recommendation that a subcommittee should be appointed for each of the Chichester, Horsham, and Worthing districts to visit and report on the accommodation provided by practitioners. In response to a protest by medical members of the committee it was stated that there had been some complaints but they had been received some years ago—and the recommendation was lost.

(Continued at foot of opposite page)

CORRESPONDENCE

ŒSTRIN AND CANCER

To the Editor of THE LANCET

SIR,—The two letters on this subject in your last issue refer to experimental work on mice, and in the second letter Dr. Parkes, Dr. Bishop, and Prof. Dodds state that "œstrone will only produce an increase in the incidence of mammary and other carcinoma when injected in large quantities from birth onwards into susceptible strains of mice. It has been shown that even these massive injections into non-susceptible strains will not produce the development of mammary or other carcinoma."

I think these writers must be referring to part only of the original scientific literature on this subject, for the reports of Lacassagne do not seem to me to substantiate their statement. Lacassagne, in a series of experiments on susceptible and refractory strains of mice, directed towards determining the influence of a familial factor in the production of mammary cancer, used mice 18 days old. In his first paper[1] he records that cancer developed within 5–6 months not only in the female mice of highly susceptible strains, but also in males of the same strain in whom mammary cancer does not normally spontaneously appear. In a later paper[2] he records the fate of the mice used in this experiment belonging to strains regarded as relatively refractory to cancer (2 per cent. of cases). Two families survived. Of one family 50 per cent. developed cancer between the tenth and twelfth month, and of the second family 80 per cent. developed cancer between the tenth and fifteenth month, thus exhibiting a latent period which according to the reckoning of Dr. Cramer and Dr. Gye would correspond to a period of 5–10 years in man. The conclusion that œstrin preparations are potentially carcinogenic would seem inevitable from these reports.

With regard to the therapeutic application of œstrin "in the standard manner prescribed to-day," a study of the literature reveals no standardised method of determining the physiological requirements of each individual patient as in the case of insulin, and no common agreement as to dosage to be used; and reports of the results of treatment are extremely varied. The amount of the hormone in the blood varies; in the blood of patients of both sexes suffering from cancer it has been shown[3] that there is an excess of this hormone. What would be the effect of œstrin therapy in such cases?

In your issue of Nov. 28th Prof. Dodds is reported as saying at the Royal Society of Medicine that "the excellent results from the treatment of kraurosis vulvæ, *a precancerous condition*, was one of the most potent arguments in favour of hormone therapy." The italics are mine, for in this description of kraurosis vulvæ Prof. Dodds differs profoundly from the teaching on the subject in British text-books of gynæcology. Kraurosis vulvæ was first described[4] in a group of young married women with normal functions, and I have seen this affection not infrequently in women of an age within the reproductive period. It was therefore with grave concern I observed that excessive doses of œstrin over a prolonged period were advocated for treating kraurosis vulvæ, more especially in view of the recent experiments of Zondek[5] in which he has shown that excessive doses of œstrin injected into rabbits for a prolonged period cause destructive pathological changes in the uterus.

In conclusion I do not consider it can ever be called "unwarrantable" to inquire as to the possible risks for a patient in any form of treatment, and I would reiterate the opinion that the nature and effect of œstrin therapy as far as they are known should be explained, and the consent of the patient obtained, before injections are given.

I am, Sir, yours faithfully,

Welbeck-street, W., Dec. 6th. ELIZABETH HUNT.

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[1] Lacassagne: Compt. rend. Soc. de biol., 1933, cxiv., 427.

[2] Ibid., 1934, cxv., 937.

[3] Dingemanse, E., Freud, J., de Jongh, S. E., and Laqueur, E.: Arch. f. Gynäk., 1930, cxli., 225.

[4] Breisky: Zeits. f. Heilk., 1885, vi., 69.

[5] Zondek, B.: Jour. Exp. Med., 1936, lxiii., 789.

(*Continued from previous page*)

Wiltshire considered a proposal that a joint committee—consisting of the chairman of the medical benefit subcommittee and a representative of the panel committee, with the clerk—should be appointed to hear any complaint made about accommodation and to confer with the practitioner concerned. Some means, it was suggested, should be found to ascertain whether there were grounds for complaint or not. A medical member recalled that a similar resolution—differing only as to the personnel of the subcommittee—had been passed by them some twelve years ago. This suggests that complaints cannot have been very frequent.

The Northampton insurance committee have appointed as their chairman Dr. David Stone, a retired practitioner, who has resided in the town for some 47 years. The Northampton county committee will also work during the ensuing year under the direction of a medical man in the person of Dr. A R. Darley.

MORTGAGED PRACTICES

To the Editor of THE LANCET

SIR,—From time to time articles appear in medical publications dealing with the interesting and important question of the mortgaging of practices as a method of raising money for the purchase of such practices. Some of these articles give the impression to the casual reader that the new arrangement entered into by the British Medical Association with the United Dominions Trust satisfies a want which has hitherto been unsatisfied, and that the United Dominions Trust scheme has been put forward as the only way in which a medical man wishing to borrow money to buy a practice can be saved from going to undesirable lenders.

The recent article in THE LANCET (Oct. 10th, p. 875) avoided that mistake, for it drew attention to the fact that the new scheme was designed to meet the case of a doctor who found it necessary to borrow the whole of the purchase price of a practice and mentioned that certain reputable insurance companies had schemes to assist doctors, but that those were for the doctors who could and would put down a proportion of the purchase themselves. It is possible, however, that some people reading the article in a casual way might have gained the impression that were it not for the new scheme the position of doctors who possessed no capital was indeed a hopeless one. In actual facts we have had considerable experience of the mortgaging of practices even up to 100 per cent. of the purchase price and the insurance company with whom we usually deal has given us complete satisfaction.

It is natural that, where possible, the insurance company would rather lend a proportion than the whole of the purchase price, but in suitable instances a 100 per cent. loan for 10 years is approved, and the treatment given by this company is not only courteous, but also very prompt—a very important factor. It would be a pity if doctors felt compelled to go to the United Dominions Trust subsidiary, for healthy competition is good, and when there is a choice of schemes it is often possible to get what more exactly suits the particular circumstances.

We have never had experience of the treatment of doctors referred to by you in your article, and we can say with confidence that all our clients have been treated generously and with every consideration.

We are, Sir, yours faithfully,

Birmingham, Dec. 4th. LEE AND MARTIN LTD.

THE IMPORTANCE OF SUGGESTION

To the Editor of THE LANCET

SIR,—The following is an illustration of the importance of suggestion upon both in-patients and out-patients treated at general hospitals.

This week a skilled carpenter was referred to me by his solicitor for an opinion as to his prognosis. The man had been very well treated in the surgical wards of one of the leading London hospitals for a fracture of the skull, and three weeks after admission it was found necessary to perform a trephine operation in order to stop the bleeding from a small vessel on the brain surface. The patient was able to give me accurate information regarding his various operations and treatment which agreed exactly with that which I had already received from other sources. I therefore asked him how he came to know so much about his condition and his reply was that he had read the notes of his out-patient record whilst waiting to see the surgeon from time to time in the out-patient department of the hospital.

The effect of this knowledge upon the patient has been to make him extremely apprehensive regarding his future. His apprehension, in my opinion, is not in any way due to a desire for compensation, for he has a wife and family and would be much happier at work than receiving 30*s.* a week, or any sum of money, as compensation for the injuries received as a result of the accident.

Would it not be possible for the proper authorities at all hospitals, especially those where medical students are being trained, to see to it that the out-patient records are not handled by patients but are placed direct upon the desk of the honorary physician or surgeon? A treatment card bearing the same number as the patient's history book can be given with safety to the patient and carried by him to the dispensary.

Some of your readers will have noticed a report in the press on an inquest held on Dec. 2nd at Hull, concerning the death of a mother of three children who had been handed a sealed letter by a hospital surgeon addressed to her doctor. Curiosity forced the woman to open the letter, and when she had read the same, which referred to her state of health, she was so distressed that she committed suicide. Could not such letters, sent to and from members of the profession to each other regarding their patients, be forwarded by post and not handled by patients at all?

The same principle applies to the discussion of patients' illnesses at the bedside. So frequently teachers of medicine seem to forget that the patient is a personality and not a case of a certain rare disease and that he is particularly keen to hear the discussion of his illness and of the possible diseases from which he might be suffering. Surely all teachers of medicine could at least withdraw to the end of the ward or to a room adjoining the ward to discuss the illnesses of their patients? In certain universities in America, for example at Yale University, all the records of the patients in the wards are kept in numerical order on a trolley which usually stands by the table of the sister in charge of the ward, so that entries can be made without difficulty by the nursing staff. The lower shelf of this trolley carries the usual instruments which might be required for the examination of patients during a ward round, and it is wheeled round the ward by a nurse. As far as I am aware this system is not generally employed in British hospitals, but it is one that could be put into effect at very little cost in all hospitals and is certainly worthy of consideration.

One is pleased to note the interest which is now being taken in the treatment and teaching of nervous diseases by many members of the medical profession, including the General Medical Council, who have made definite recommendations to the universities of Great Britain on this subject, and by Lord Horder who, in the *Times* of Nov. 30th, makes a strong appeal for adequate treatment of persons suffering from nervous disorders "by better education and by research that will lead to prevention." Perhaps the teaching hospitals could see to it that each contains a psychiatric department staffed by physicians with experience in psychiatry and neurology, not necessarily the medical superintendents of the nearest mental hospitals, although in many cases these physicians are quite capable of carrying out the work suggested.

I am, Sir, yours faithfully,

Brook-street, W., Dec. 4th. RALPH A. NOBLE.

WORK AS A REMEDY

To the Editor of THE LANCET

SIR,—In a leading article of Nov. 28th under this heading you remark that "the name 'occupational therapy' is not perhaps a fortunate one, but it is difficult to think of a better." Would not "recreation therapy" be a better term? The definition of recreation is "the act of recreating; refreshment of the strength and spirits after toil," and the definition of recreative is "giving new vigour or spirit."

I am, Sir, yours faithfully,

G. H. HARPER-SMITH.

Haywards Heath, Sussex, Nov. 28th.

DYE DERMATITIS OF EYELIDS

To the Editor of THE LANCET

SIR,—I am interested in Dr. Ingram's criticism of Dr. Semon's paper on dye dermatitis of the eyelids. Dr. Ingram suggests that in a case of sensitiveness of the skin, either acquired or inherited, to a substance the patch-test must be positive. I agree that this is what we usually expect, but while investigating a dermatitis of the hands in a worker in teak I applied patches prepared with teak dust on the interscapular region and on the left upper arm. I obtained a positive result on the arm but was rather surprised that the result on the shoulders was negative. I am still unable to explain this apparent local sensitiveness of the skin, but I think these results show that *a patch-test in one portion of the skin may* not necessarily be positive in a true case of sensitiveness.

I am, Sir, yours faithfully,

Manchester, Dec. 4th. ALEX. R. SOMERFORD.

GRAINS AND SCRUPLES

To the Editor of THE LANCET

SIR,—I have been interested and amused by reading the first section of the contribution of "A Chronicler" to your Grains and Scruples series. It may be that some readers of THE LANCET will find it convenient to know which of the classics mentioned have been rendered into English. Of one of them only are there several translations, and they are not all equally easy to obtain. Below I give a list which may be found to be of some use.

There is no complete translation of the Works of Galen, but the section On the Natural Faculties has been translated into English by A. J. Brock, in the "Loeb Classics," 1916.

The Works of Hippocrates have been translated into English by W. S. Jones and E. T. Withington in the "Loeb Classics," 4 vols., 1923–31.

The Works of Celsus have been translated into English by J. Grieve, 8vo, London, 1756; by J. W. Underwood, 2 vols., 1831; and by W. G. Spencer in the "Loeb Classics," vol. I., 1935. Vol. II. is not yet published.

Of the Works of Rhazes, there is no complete translation into English, but the Treatise on Small Pox and Measles, to which allusion is made by "A Chronicler," has been translated from Arabic into English by Dr. W. A. Greenhill, for the Sydenham Society in 1848.

I am, Sir, yours faithfully,

ARNOLD CHAPLIN.

York Gate, N.W., Dec. 7th.

TESTOSTERONE PROPIONATE AND THE PROSTATE

To the Editor of THE LANCET

SIR,—Dr. Browdy has been unfortunate in his use of androsterone in the treatment of enlargement of the prostate (THE LANCET, Dec. 5th). We feel, indeed, that he has been unusually so, for unless information has been wilfully withheld by others who have written on this subject, his experience must be unique. We also feel that it is not too much to ask that he be possessed of knowledge of the use of testosterone propionate before he defines how it should be used. During the past three months we have studied ten patients who are being treated with testosterone propionate for enlargement of the prostate. At first these patients were given either 5 or 10 mg. testosterone propionate twice weekly. Most of them are now receiving 40 mg. a week in one injection. In no single case have any adverse effects followed the injections, and in almost every case the treatment has already yielded some success. We are not yet prepared to discuss the specificity of this success, but regarded purely on the basis of male-hormone potency (as determined experimentally[1]) 40 mg. of testosterone propionate is equivalent to about 200 times the amounts of androsterone Dr. Browdy used, even assuming that he injected 20 capon units of androsterone (=2 mg.) daily. Four patients also received testosterone in amounts which exceeded in potency the doses used by Dr. Browdy. In no single case, again, were the injections followed by any adverse effects.

The patients in our series are being injected once weekly, because there already is ample evidence that the biological effects of testosterone propionate are prolonged far beyond the time of its administration.[2] It would be useful to have information about the rate of the hormone's excretion, but whatever its nature, this information could not invalidate, and could only strengthen, this view about the prolongation of the hormone's effects. In any case it is preferable to continue basing treatment on biological facts, rather than to limit treatment on the basis of Dr. Browdy's speculations. Indeed, it would seem to be stretching the legitimate bounds of speculation unduly to suppose that 20 capon units of androsterone would cause, as Dr. Browdy suggests, enough congestion in an enlarged human prostate to lead to urethral bleeding. Such an amount has no obvious immediate effect on the vascularity of the prostate of a small monkey, and about 3000 units injected in single doses have failed to cause any urethral bleeding in monkeys. Even though the vascular conditions in an enlarged human prostate may be different from those of a normal prostate, it is not unreasonable therefore to ask that Dr. Browdy should also seek in some other direction for an explanation of the urethral bleeding that followed his injections.

Finally, we should like to point out that although the amounts of testosterone propionate given to the patients we are studying were primarily based on data supplied by experimental work on monkeys, the clinical results obtained encourage us to increase rather than to diminish them. Furthermore, we feel strongly that in the present state of ignorance, male-hormone therapy should be guided by experimental studies, rather than by no studies at all. When information has accumulated about the clinical use of male hormones, it will be time enough for the reactions of experimental mammals to these substances to be disregarded in medical practice.

We are, Sir, yours faithfully,

S. ZUCKERMAN,
RAYMOND GREENE.

Department of Human Anatomy, University Museum,
Oxford, Dec. 7th.

REACTIONS TO ANAHÆMIN

To the Editor of THE LANCET

SIR,—In your last issue Dr. Hales describes reactions to anahæmin in two cases of anæmia. In my experience the original anahæmin resembled other liver extracts in that transient flushing or dizziness not infrequently followed its injection intramuscularly or intravenously, disturbances such as urticaria, bronchial spasm ("asthma"), or even temporary cardiac syncope in isolated instances. Whether such reactions will cease to occur when the liver principle is available in a state of complete purity it is not yet possible to state. A paper describing further purification of Dakin and West's fraction and the results obtained with the more purified product is at present in the press. In the past five months, during which the purer preparation has been administered to 102 cases of pernicious anæmia, either to induce or to maintain a state of remission, no reactions have been observed.—I am, Sir, yours faithfully,

Newcastle-on-Tyne, Dec. 5th. C. C. UNGLEY.

NEEDS OF ELDERLY NURSES.—At a meeting of the Elderly Nurses' National Home Fund the Bishop of Southampton asked for support for this effort to provide old nurses with comfortable homes. The sum of £5000 is needed before the building can be started and another £15,000 for endowment.

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[1] Deanesly, R., and Parkes, A. S.: Biochem. Jour., 1936, xxx., 291. Miescher, K., Wettstein, A., and Tschopp, E.: Ibid., 1936, xxx., 1977.

[2] Miescher, K., Wettstein, A., and Tschopp, E.: Schweiz. med. Woch., 1936, lxvi., 763. Parkes, A. S.: THE LANCET, Sept. 19th, 1936, p. 674. Zuckerman, S.: Ibid., Nov. 28th, 1936, p. 1259.

INTERNATIONAL SOCIETY OF UROLOGY

(FROM OUR VIENNA CORRESPONDENT)

THE meeting of this society concluded the series of medical congresses held this autumn in Vienna. The delegates to the congress were given a cordial reception by the municipality, by the leading officials of the Government, and by the Vienna medical faculty. Prof. Viktor Blum (Vienna) presided, and the convention lasted for three days; each day was devoted to papers on a single topic in German, English, French, Spanish, or Italian.

CARCINOMA OF THE PROSTATE

The introductory paper was presented by Dr. T. Hryntschak, who discussed the pathogenesis and histology of prostatic cancer. He said that the problem, whether cancerous degeneration took place in the myoglandular hyperplasia of the prostate or in the gland tissue itself, had not yet been solved. In collaboration with Dr. Theodor Bauer he had found that of 310 operation specimens 3 per cent. showed cancerous changes not suspected clinically, and 7 per cent. had precancerous lesions. In very many cases of hyperplasia a focus of regeneration was found. Their researches proved beyond doubt that cancerous degeneration took place not only in the hyperplastic parts of the prostate but also as a result of inflammatory processes in the gland itself. Carcinoma occurred twice as often in this part as in the hyperplastic tissues.

A paper was then read by Mr. C. A. R. Nitch (London) on the conservative treatment of carcinoma of the prostate, which, he said, comprised radiotherapy or operation, or both combined. The immediate results of X ray treatment were often excellent, but the ultimate results were disappointing. The five-field maximum method of Holfelder-Reisner and Levitt's intensive split-dose method were suitable, but only 6 per cent. of complete cures had been claimed. Radium gave better results, especially when applied in large doses of about 70 mg. to the rectal (14 mg.), vesical (50 mg.), and urethral (6 mg.) surfaces of the prostate. Conservative surgery consisted of suprapubic drainage, transplantation of the ureters, and electro-resection, which was the best palliative measure for the relief of obstruction at the neck of the bladder.

The third contribution was a paper by Prof. Oreja (San Sebastian, Spain) which was read by Dr. Hryntschak because its author was prevented from coming by the war in Spain. Prof. Oreja said that early diagnosis was important if a radical cure was aimed at. He stated that 20 per cent., or perhaps even more, of all cases of prostatic obstruction were of cancerous origin. Rectal palpation and radiographic examination of the skeleton were of the greatest importance for early diagnosis, especially in men over 50. He thought the best results were obtained when operation was performed only in suspected cases—i.e., when rectal palpation revealed small suspicious nodules, or when diagnosis was doubtful. If, however, the diagnosis was certain, he thought it better to abstain from radical operation. In such cases he believed that trans-urethral resection would render great help and in the near future might abolish suprapubic cystotomy.

RENAL SUPPURATION

The second day was devoted to the discussion of the problem of suppuration in the parenchyma of the kidney. Dr. Hugh Cabot (Rochester, U.S.A.) presented a paper on the blood-borne pyogenic infections of the kidney. The organisms, the pyogenic cocci, he said, appeared in the urine early in the disease, but disappeared as a rule in a few days, though occasionally they persisted for several weeks. The lesions were primarily cortical and medullary, but sometimes a massive renal carbuncle or a perinephric abscess developed. Radiography was a valuable addition to the classical methods of diagnosis. For the fulminant cases operation was alone available, but the other acute cases, with rigors, hyperpyrexia, and leucocytosis, might recover under medical treatment, with careful observation of the patient's reaction. In subacute cases operation was only indicated when perinephric abscess developed. The types of operation he advised were nephrectomy in fulminant cases and in widespread infection without abscess, if the patient was losing ground, decapsulation with drainage in carbuncle; while perinephric abscess required exploration, which would determine the sort of operation needed.

Prof. Geza Illyés (Budapest) discussed all types of suppuration of the renal parenchyma without considering their ætiology. He differentiates three modes of infection: hæmatogenous (descending), urogenous (ascending), and lymphogenous. The resulting infections were: suppurative nephritis, for which he recommended nephrectomy, sometimes preceded by decapsulation, which alone was often effective; suppurative pyelonephritis (the commonest type, containing the ascending infections), in which treatment should be conservative, if possible; and pyonephrosis, which was the final result of renal suppuration, was to be treated radically.

The third paper, communicated by Dr. Necker, had a wider scope, dealing with renal suppuration, the result of all types of non-specific kidney infections. Experiments, he said, tended to show that cocci preferred the cortex and the colon bacilli the mucosa. In the former, suppuration of the parenchyma was primary, in the latter it was the final stage. The blood picture and the sedimentation-rate were valuable aids to diagnosis, and pyelography might answer accurately many questions. He advocated expectant treatment for a short time only, to be followed by decapsulation, incision, or excochleation, which would often be sufficient. Even very serious cases might improve with continuous catheterisation, with cystotomy, or with continuous drainage of the ureter, but often nephrectomy was necessary.

THE SECRETION OF URINE

The third and last day of the convention was devoted to the physiology and pathology of the renal excretion. Prof. Pisani (Milan) described a renal excretion and a bladder excretion, and pointed out that there were transitory and permanent, acute and chronic, excretory disturbances both of motility and of tone, as well as of a mixed type. Chronic disease might often be neutralised by compensatory processes, but this could not hold out indefinitely.

Dr. H. Rubritius read a paper on the physiology of the efferent urinary channels. He pointed out that the muscular walls of hollow organs had zones acting as sphincters, and others as detrusors; with the contraction of the detrusor the corresponding sphincter relaxed. While the bladder contracts, therefore, the peristalsis of the upper urinary tract ceases, a mechanism regulated by reflexes. Any disturbance of this would cause a vesico-ureteral reflux or upward flow. The mucous membrane of the urinary passages, he said, was capable of considerable resorption, especially in the fornix calicis, and the undisturbed coöperation of the kidneys and the urinary passage was ensured by the interaction of these organs.

The third and last report presented by Prof. I. Snapper (Amsterdam) dealt with the pathology of urinary secretion. This, he said, was formed by the combined action of different physiological processes in the kidney, glomeruli and tubules having completely separated functions of excretion and absorption respectively. Filtration in the glomerul depended upon the local as well as the general blood pressure, upon the composition of the blood plasma, and also upon the innervation of the kidney. Urine, he went on, was a supersaturated solution of many substances, some of which were otherwise practically insoluble. This had an important bearing on stone formation, and Prof. Snapper discussed the hydrotropic action of different organic constituents of the urine.

PARLIAMENTARY INTELLIGENCE

HEALTH CONDITIONS IN OFFICES

On Dec. 4th in the House of Commons Mr. **Ammon** moved the second reading of the Offices Regulation Bill. It was similar, he said, in all respects to the measure which was brought before the House in March last (see The Lancet, 1936, i., 695). They were told that the Public Health Act, which was then under consideration, would very largely meet the needs that were declared in the Bill itself. But the Public Health Act in this connexion had no relation whatever to London or to Scotland, places where, if anywhere, there was the greatest need for legislation with regard to office control and supervision. Although in the last debate the Minister said that the Consolidation Act would to a large extent overcome many of the difficulties and make the Act operative, it did not do anything of the sort, because unless the Government took steps through the Ministry of Health to bring pressure upon the local authorities, the law was likely to be a dead letter. This Bill was pressed forward in the hope that legislation similar to that which was being well carried out in regard to factories might be extended to office workers. The importance of this legislation was emphasised by the fact that there were 4,250,000 persons concerned.

Mr. **Raikes** moved the rejection of the Bill. He said that the fact that there had not been time to allow the Public Health Act to produce its results was a conclusive argument against bringing a Bill of this kind forward twice in the same year. Some of the provisions of the Bill were already definitely covered by the Public Health Act. If they adopted the figure of 400 cubic feet per person proposed in the Bill they would automatically close at once a very considerable number of the best offices in London. He was prepared to admit that the existing law had not been made full use of. If that had been done the law would have covered practically every case quoted in the House since 1934 in regard to bad conditions in offices.

Mr. **Wakefield** seconded the motion for the rejection. He said that the Public Health Consolidation Act which was passed last session went further and was more suitable for the purpose than the proposals contained in this Bill which would be merely redundant legislation.

Sir **Francis Fremantle** said he had been active in pressing forward and insisting upon some similar provisions to those contained in this Bill for the last 14 years, but the legal position was obscure. Some medical officers of health were taking it for granted that they had power to inspect offices, and it was not disputed. The result in those cases was satisfactory on the whole. Other medical officers were not taking such action because they felt they had not the powers or that the law was doubtful; at any rate they gave good reason for not carrying out the inspection that was certainly needed. It was therefore decided to have a test case, but though year after year he questioned the Ministry of Health about the test case it never came off. He thought it was decided that what must be done was to get some definite legislation to establish the position They had therefore had several Bills for office regulation. A Bill on very similar lines to the present Bill was brought forward in 1926. The Royal Sanitary Institute thought that some such provision was necessary but that the Bill was unnecessarily onerous. But its provisions were almost word for word incorporated in the Public Health Consolidation Act which was passed last session, and it seemed to him redundant except in so far as this Act did not deal with London. As to the view that the conditions of the Bill were unnecessarily onerous, there was no question that in a large number of cases underground or internal offices had proper ventilation arrangements, although of course supervision of these premises was required. Everyone knew that the condition of many of them was scandalous. Medical officers of health stated that they had not received many complaints, and the Ministry of Health gave that as one ground for inaction some years ago. The reason however was obvious. Clerks or typists did not feel able to make complaints which would certainly be set down against them. It seemed clear enough that a great deal more needed to be done, but there was no need to be scared by exaggerated statements. Statistical fallacies in regard to ill health in offices arose from the fact that they had not an equally healthy population to deal with at the beginning. Still there was need for the provision indicated in the Bill, although he believed it would be made a necessary condition in London by the Public Health Consolidation Act.

THE HOME OFFICE VIEW

Mr. **Geoffrey Lloyd** said that the Government were in sympathy with the general objects behind this Bill, but they were surprised that it should have been introduced again so soon after the assurance he had given that the Public Health Bill then in draft would meet a large number of the points. The undertakings he then gave had been fulfilled; the Public Health Act had now been passed. The House would not wish to impose onerous new provisions and restrictions on any section of the community unless they were sure that they were required and were not already covered by existing legislation.

The Registrar-General had supplied him with figures regarding the mortality-rates among office workers. The rate for male clerks who were civil servants was 15 per cent. below the male average up to 45 years of age, and their advantage thereafter became progressively greater, exceeding 40 per cent. after the age of 65. The cause of this advantageous mortality-rate he believed to be the high physical standard of the Civil Service at recruitment. It was not a question of the effect of office conditions. The mortality-rate of male clerks outside the Civil Service at the ages of 25 to 45 was about the same as that for males as a whole. Thereafter they exhibited a mortality about 5 per cent. higher. The question of phthisis was rather important in both groups. In the Civil Service the excess in mortality in regard to phthisis was confined to the age-group from 35 to 55, and it seemed probable that this excess, amounting to about 50 deaths in three years, was a delayed outcome of admission to this occupation of many unfit or invalided ex-Servicemen after the war. The mortality from phthisis among clerks outside the service showed a slight excess which would be accounted for if only one out of every 100 phthisical persons in the country entered clerical professions. There was a tendancy for persons in a phthisical condition to find their living in the clerical profession. At the same time he did not think it would be wise to assume that the position was all against the clerical male worker, because the excess from phthisis was about equal to the decrease in mortality from accidents to clerks as compared with the general body of the population. It was true also that they had a relatively high mortality-rate from angina pectoris and digestive diseases. That was offset by the low mortality from bronchitis and pneumonia.

The mortality-rates of single women engaged in clerical occupations compared very favourably with those of other single women of all ages, being in most cases about 70 per cent. of the average level. This was an interesting point, because the reasons that led women to go into clerical occupations were rather different from those that led men to enter those occupations. Men had a far greater range of occupations open to them at present, and therefore there was more likelihood of those with a particular physical weakness such as phthisis to enter occupations which were less hard; whereas with regard to women clerical occupations were just one of their normal main activities. Therefore the fact that in the case of women the mortality-rates were favourable went to show that a factor of prime importance was the physical conditions of the entrants into the occupation. Even in the higher aged group of women engaged in clerical occupations they still had very favourable mortality-rates, and with women who all their lives had spent their time in offices there was no indication that the mortality-rates were unfavourably affected by their having worked in offices. But of course he agreed that the conditions in offices ought to be as good as possible.

Mr. Lloyd said the Minister of Health had informed him that he intended in a circular to call the special attention of local authorities to their clarified powers under the Public Health Act and to the necessity for enforcement. The London County Council had expressed their intention of bringing in an amending Bill to bring the law in London into proper relation to the Public Health Act. In regard to Scotland the Secretary of State took the view that the present law in Scotland relating to health conditions in offices was much the same as the law in England as contained in the Public Health Act, 1936, and that the more important parts of the present Bill were met by existing statutes. Further, the report of the Committee on Scottish Health Services recommended the institution of a new sanitary code for Scotland, and the committee's recommendations were at present being considered with a view to appropriate action. The Secretary for Scotland intended to ask the Department of Health for Scotland to issue a circular to Scottish local authorities drawing attention to the Public Health (Scotland) Acts in their application to the regulation of offices and the desirability of the enforcement of their powers in this connexion.

He wished, Mr. Lloyd concluded, to emphasise the profound alteration and improvement which was made by conferring the right of entry on inspectors of local authorities. As those powers were exercised they would begin to accumulate a considerable body of authoritative information as to conditions in offices which did not exist at present.

The motion for the rejection of the Bill was carried by 169 votes to 114.

VARIOLA MINOR AND VACCINATION

In reply to a question put by Mr. GROVES to the Minister of Health as to how many deaths occurred amongst the 11,930 unvaccinated, and 1756 vaccinated, cases of variola minor, respectively, treated in the small-pox hospitals of the London County Council during the years 1928 to 1934; what were the ages of the fatal cases in question; and what were the ages of the fatal cases which were vaccinated or revaccinated after exposure to small-pox, Sir KINGSLEY WOOD gave the following particulars.

Unvaccinated cases: 23 deaths. Their ages were as follows:—

Age.	Cases.	Age.	Cases.
2 days	1	10 years	1
3 „	1	11 „	1
12 „	1	13 „	1
17 „	1	17 „	1
3 weeks	2	45 „	1
4 „	1	56 „	1
5 „	1	58 „	1
7 months	2	59 „	1
2 years	2	69 „	1
5 „	1		
7 „	1		23

Of these 23 fatal cases, 11 were vaccinated for the first time after exposure to infection. Their ages were as follows:—

Age.	Cases.	Age.	Cases.
3 days	1	2 years	1
12 „	1	5 „	1
3 weeks	1	13 „	1
4 „	1	58 „	1
7 months	2	59 „	1

Vaccinated cases: 11 deaths occurred among the vaccinated cases. Their ages were as follows:—

Age.	Cases.	Age.	Cases.
37 years	1	56 years	1
45 „	1	63 „	1
46 „	2	66 „	1
50 „	1	69 „	1
53 „	1	79 „	1

Of these 11 fatal cases, all of which were vaccinated in infancy, 3 had been vaccinated for the second time after exposure to infection. Their ages were as follows:—

Age.	Cases.	Age.	Cases.
50 years	1	79 years	1
63 „	1		

MEDICAL OFFICERS OF HEALTH AND PRIVATE PRACTICE

In the House of Lords on Dec. 8th Lord MERTHYR asked His Majesty's Government how many county councils in England and Wales had failed to formulate arrangements for securing that medical officers of health should not engage in private practice as medical practitioners in accordance with the provisions of Section 58 of the Local Government Act, 1929, and of Section 111 of the Local Government Act, 1933; and what steps were proposed to be taken for ensuring the observance of the law by such councils; and moved for papers. He said that Medical officers of health would be the first to admit that they were not supermen and that they could not serve at one and the same time two masters whose interests frequently conflicted. If the interests of a medical officer's private patients conflicted with the interests of his medical authority it was only natural that the interests of his patients would be placed first and that of the authority last. Specialists were required in local government nowadays as in other walks of life, and it should be necessary for a medical officer to know only the barest details of surgery, while on the other hand he ought to be steeped in the law of public health.

Viscount GAGE, Lord in Waiting, said that 27 county councils in England and Wales had so far failed to complete the formulation of such schemes, but it would be a mistake to deduce from those figures that there had been a serious breakdown of the administrative machinery. The principal cause of the delay was that certain counties had not completed the reviews of the county areas that was initiated in 1929. Relations between the Ministry and the local authorities had got to be maintained with discretion. The Minister of Health fully appreciated the importance of compliance with the requirements of the section of the Act as early as possible, and as soon as the reviews had been completed he would draw the attention of the county councils to their statutory obligation. Despite appearances to the contrary, the Minister of Health was satisfied that the majority of the 27 county councils which had not yet formulated their schemes were taking steps to do so, and in the case of only three councils did it appear that failure had arisen. He would use his powers in regard to those which continued in an attitude of non-compliance. The county councils remained responsible for making these arrangements, even though they might not have come to an agreement with other authorities within their area, although, of course, it was desirable that such agreements should be reached as soon as possible. The formulation of a scheme did not mean that no part of that scheme could be afterwards changed.

It had been argued that the appointment of a whole-time medical officer to cover a district at present served by several part-time officers must be delayed until all the part-time officers had finished their contractual periods of engagement. To overcome the difficulty provision was included, in regulations issued by the Minister of Health last year, to limit the appointment of medical officers who were not restricting their practice to a period of not more than a year at a time, and a similar limitation of period of appointment had been imposed by administrative action in such cases. It was hoped by this way to facilitate the appointment of medical officers of health restricted from private practice. The programme would be rather slow, but it was proceeding steadily. It was never contemplated that the reform should be carried out in a short time provided that progress was steady.

QUESTION TIME

THURSDAY, DEC. 3RD

Special Areas Bill

Mr. LAWSON asked the Minister of Labour if it was the intention of the Government to introduce an amended Special Areas Bill, and when it would be introduced.—Mr. ERNEST BROWN replied: It is hoped that the proposed Bill to amend the Special Areas (Development and Improvement) Act, 1934, will be introduced soon after the House meets in January.

Women Regional Medical Officers

Mr. HOLLINS asked the Minister of Health whether he was aware that it was the general practice of approved societies to send all their married women who applied for benefit under the National Health Insurance Act to the regional medical officers before any payment of benefit was made; and whether he would consider the appointment of lady regional medical officers to examine all women who might be sent to them by approved societies.—Sir KINGSLEY WOOD replied: Where an approved society is in doubt as to the incapacity for work of any member claiming sickness or disablement benefit, it is entitled to refer the member to a regional medical officer for a second opinion, but I cannot agree that it is the general practice of societies to take this step in the case of all married women who apply for benefit. The regional medical staff already includes some women, and all vacancies on the staff are open to qualified women applicants equally with men, but I have no reason to think that there is any general desire that all insured women referred to the regional medical service should be examined by women.

Water Resources: A Central Advisory Committee

Miss WARD asked the Minister of Health whether he had considered the report of the joint committee on the reorganisation of the water-supplies of the country; and what action he proposed to take in the matter.—Sir KINGSLEY WOOD replied: I have considered this report. I cannot hold out any prospect of water legislation this session, but I have decided, as a first step, after consultation with the other departments concerned, to set up a central advisory water committee. The terms of reference and constitution of the committee are now being formulated.

Malarial Treatment for Paralysis of the Insane

Mr. SORENSEN asked the Minister of Health whether he could give the number of patients in mental hospitals during each of the past five years who had received malarial treatment for general paralysis of the insane; and how many of such patients were deemed to have recovered as a result of such treatment.—Sir KINGSLEY WOOD replied: The numbers of patients in mental hospitals who have received malarial treatment during the last five years for which particulars are available are as follows:—

1930	*1931*	*1932*	*1933*	*1934*
702 ..	737 ..	690 ..	639 ..	646

Over 10 per cent. of those treated in each of these years were discharged "recovered" within the year. Complete information is not at present available as to the total number of recoveries among those treated over the period of five years.

County Councils' Health Services

Mr. GEORGE GRIFFITHS asked the Minister of Health whether he would give a list of the county councils which had under the Local Government Act of 1929 transferred from the public assistance committee to the appropriate committee of the council their powers under the following Acts, respectively: the Public Health Acts, the Mental Deficiency Acts, the Maternity and Child Welfare Act, 1918, and the Tuberculosis Act, 1921.—Sir KINGSLEY WOOD replied: The following county councils have made declarations under Section 5 of the Local Government Act, 1929, that certain assistance is to be provided exclusively by virtue of the Acts referred to in the question, and not by way of poor relief:—

Public Health Acts.—Nil.

Mental Deficiency Acts.—East Sussex.

Maternity and Child Welfare Act, 1918.—Cheshire, Hertford, and East Sussex.

Tuberculosis Act, 1921.—Hertford, Lincoln (parts of Holland), and Rutland.

Cost of Meals for School-children

Mr. MAINWARING asked the President of the Board of Education the total money cost to local authorities, within distressed and special areas of the country, for the provision of meals and other nourishment to school-children during each of the last four years.—Mr. OLIVER STANLEY replied: The following Table gives the net expenditure on the provision of meals, milk, and other supplementary nourishment during the years in question of all the local education authorities in England and Wales whose areas are wholly or partly special areas as defined in the First Schedule to the Special Areas (Development and Improvement) Act, 1934. Fifty per cent. of this expenditure is met by grants from the Board of Education:—

Year.	Net expenditure.
1932–33	£98,619
1933–34	£115,040
1934–35	£117,572
1935–36	£116,004

The slight decline in the expenditure during the financial year 1935–36 is due to the reduction in the price of milk under the milk in schools scheme which came into operation on Oct. 1st, 1934. The number of children receiving free meals or milk was greater in 1935–36 than in 1934–35. The figures are confined to the special areas, and there is no precise definition of distressed areas as distinct from special areas.

MONDAY, DEC. 7TH

Post Office and Patent Medicine Advertisements

Mr. CARY asked the Postmaster-General what annual revenue was derived, directly or through a contractor, for advertisements in books of stamps; what portion of the revenue so obtained was derived from advertisements of medicines and appliances for the cure or relief of rheumatism and arthritis and of deafness, respectively; and whether, in view of Paragraph 57 (2) of the Report of the Select Committee on Patent Medicines in 1914 recommending the prohibition of advertisements of cures for deafness, among other diseases, it was his practice to consult the Minister of Health respecting such advertisements.—Major TRYON replied: The figure asked for in the first part of the question is £16,493, and those asked for in the second half are £838 and £3074. The answer to the third part is in the negative, but the Minister of Health is aware of the general policy of the Post Office.

Alcohol and Road Accidents

Mr. MESSER asked the Minister of Transport, whether he was aware of recent experiments and investigations at the National Institute of Industrial Psychology, the conclusions of which had still further enforced the findings of the British Medical Association on the relation of small doses of alcohol and unreliability in motor driving; and if he would take steps, in view of the toll of road accidents, to bring this matter prominently once more to the attention of the motoring public.—Captain A. HUDSON, Parliamentary Secretary to the Ministry of Transport, replied: Yes, Sir, the Institute furnished me with a copy of the report of a preliminary study of the relation of alcohol to road accidents, based upon a series of experiments, the results of which are stated to indicate that even moderate quantities of alcohol tend to make a driver accelerate unconsciously and maintain a less steady course. The report received considerable notice in the press, and I do not doubt that the hon. Member's question will serve to draw further attention to it.

TUESDAY, DEC. 8TH

Remuneration of Women Medical Officers

Mr. KELLY asked the Financial Secretary to the Treasury why women doctors in Government employment received remuneration equal to that of their male colleagues, and why such equality was not recognised in respect of any other branch of scientific workers.—Lieut.-Colonel COLVILLE replied: The policy underlying the general practice of differentiating in the pay of men and women civil servants in the same grade was explained by the Prime Minister in the debate on April 6th last. Differentiation was made in the case of women scientific workers in accordance with the practice described on that occasion. Women medical officers are in a special position, in connexion with that practice, in view of the well-established outside custom of giving the same scales of pay to men and women in the case of medical appointments for which both sexes are eligible.

Milk-in-Schools Scheme in Scotland

The Duchess of ATHOLL asked the Secretary of State for Scotland the total number of children in primary schools in Scotland; and the number of children supplied with milk under the milk-in-schools scheme on the latest date for which figures were available.—Mr. ELLIOT replied: At 31st March, 1936, there were 647,662 children in primary schools in Scotland of whom 283,378 were receiving milk under the milk-in-schools scheme. More recent figures of the numbers supplied with milk in primary schools are not yet available, but in September approximately 321,000 children out of a total school population of 807,000 were supplied with milk under the milk-in-schools scheme.

Housing of Aged Persons

Mr. PERKINS asked the Minister of Health whether he would state in percentages the numbers, respectively, of rural district councils, urban district councils, and municipal corporations which had built accommodation specially designed for aged persons since the war.—Sir KINGSLEY WOOD replied: Since the Act of 1930 which permitted small houses suitable for aged persons to rank for subsidy, one bedroomed dwellings have been or are being provided by 13·2 per cent. of the rural district councils, 22·1 per cent. of the urban district councils, and 45·5 per cent. of the municipal corporations. Information is not available with regard to any such dwellings provided under earlier Acts.

MEDICAL NEWS

University of Oxford

In recent examinations for the B.M. the following candidates were successful in the subjects mentioned:—

Forensic Medicine and Public Health.—R. F. B. Bennett, R. G. Blackledge, B. A. M. Brown, D. I. Crowther, H. J. L. Dickinson, T. Gadian, A. C. Grey, N. J. S. Gurney, G. F. C. Hawkins, M. H. Hughes, F. J. Ingham, D. Jefferics, G. O. Jelly, J. Mason, N. J. de V. Mather, C. I. Murphie, R. B. Niven, A. R. Norton, R. G. W. Ollerenshaw, R. E. Ooi, H. G. O. Owen-Smith, G. L. Peskett, I. B. Pirie, J. L. Reid, I. F. Rose, D. A. F. Shaw, T. H. Shire, A. F. Smith, T. B. Snell, R. Y. Taylor, R. H. S. Thompson, C. B. I. Willey, W. Synne Willson, W. B. Young, A. J. M. T. Barnes, and J. M. Sherring.

Materia Medica and Pharmacology.—J. W. Ashley, N. F. E. Burrows, C. D. Cormac, J. M. Couchman, P. S. Edgecombe, O. I. Green, M. W. Hemans, F. J. Ingham, J. N. Macdonald, G. K. McGowan, R. B. Niven, J. C. Prestwich, E. B. G. Reeve, T. R. Savage, J. Scholefield, R. A. Shawyer, T. Sutton Coulson, C. R. B. Welford, K. F. Wilsdon, E. J. Burchardt, D. C. Pedley, and M. M. Pickles.

Pathology.—G. F. Bader, E. H. Hiley, R. M. Hugo, J. G. Jamieson, K. H. A. Marshall, R. B. Niven, T. R. Savage, C. W. Seward, M. A. Slee, B. M. Thornton, C. R. B. Welford, C. B. I. Willey, W. B. Young, and W. E. Young.

An examination for the Radcliffe travelling fellowship, which is of the annual value of £300 and is tenable for two years, will begin on Feb. 16th.

There will be papers in physiology, pathology, and preventive medicine, together with a practical examination in pathology; and an essay subject will also be proposed. Candidates may in addition offer a special branch of medicine or surgery, but notice of this should be given when application is made. They must have passed the examinations required for the B.M. degree not more than four years previously, and they should send their names, addresses, and qualifications to the regius professor of medicine, University Museum, Oxford, not later than Feb. 11th. It is a condition of the fellowship that the holder shall spend at least twelve months outside the United Kingdom.

Leeds University

Mr. Frank Parkinson, head of a firm of electrical engineers and a former student of the University, has given £200,000 for the proposed main frontage to the University in connexion with the reconstruction scheme.

University of London

At an emergency extraordinary meeting of the senate of the University held on Dec. 7th the following resolution was adopted:—

> That the Senate desire, both as a body and as individuals, to set on record their sense of the incalculable loss that the University has sustained in the death of Sir Edwin Deller, and to express their profound gratitude for the devoted and single-hearted service he rendered to it. Mourning a great administrator, a wise counsellor, and a beloved friend, they offer their deepest sympathy to his family in their tragic bereavement.

The following additional examiners have been appointed for the degree of M.B., Part I., December, 1936: Mr. R. M. Handfield-Jones and Prof. E. D. Telford (surgery); Mr. Aubrey Goodwin and Prof. F. J. Browne (midwifery).

Applications for the Geoffrey E. Duveen travelling studentship in oto-rhino-laryngology are invited from registered medical practitioners who wish to undertake research on this subject. The fellowship is of the value of £450 a year, and applications should reach the University before Dec. 31st.

The Paul Philip Reitlinger prize, offered this year for the best essay embodying the result of some research work on a medical subject cariedr out by the candidate, has been awarded to Mr. R. A. Gregory, M.Sc., for his essay on the problem of the cyclitols.

The following examiners have been appointed for 1937:—

Diploma in Clinical Pathology.—Prof. E. C. Dodds, Prof. James McIntosh, and Prof. J. Shaw Dunn.

Diploma in Public Health.—Prof. M. E. Delafield, Prof. W. W. C. Topley, F.R.S., Prof. H. B. Maitland, and Prof. H. D. Wright (Part I.); Prof. M. Greenwood, F.R.S., Prof. W. W. Jameson, Prof. R. M. F. Picken, and Dr. Alexander Joe (Part II.). Dr. Joe will also act as examiner for hospital administration and the clinical aspects of infectious disease.

Doncaster Royal Infirmary

Half the annual expenditure of the Doncaster Royal Infirmary has been met by the contributions of workmen and employers in the mining industry.

National University of Ireland

Dr. Denis Coffey has been elected vice-chancellor of the University for 1937 and 1938.

Dr. Henry Moore, professor of medicine in University College, Dublin, was appointed to represent the University s one of the original members of the Irish Medical Research Council.

Prof. Stephen Shea was awarded the degree of M.D. or published work.

University of Dublin

At recent examinations at the School of Physic, Trinity College, the following candidates were successful :—

M.D.

Sydney Brass and R. L. G. Proctor.

M.CH.

Martin Fallon.

FINAL MEDICAL EXAMINATION, PART II.

Medicine.—Isabelle M. V. Elliott, first-class honours; G. C. Blackham, second-class honours: S. H. Morrison, D. J. H. Douglas, J. G. Steinbock, W. J. G. Warwick, P. L. van Aardt, Isidore Shreider, and P. J. Mullaney.

Surgery.—Isabelle M. V. Elliott, first-class honours; H. A. Daniels and S. E. M'Connell, second-class honours; P. G. Patton, G. W. Patterson, N. J. Smith, M. R. W. Spacek, W. E. Connihan, C. W. Greene, T. S. Agnew, Margaret Perry, F. J. C. Loughran, A. E. Fannin, B. G. Kearon, A. E. B. de Courcy Wheeler, J. R. Sides, W. S. M'Bride, and Rebecca M. R. Pike.

Midwifery.—Cecil Mushatt, first-class honours; William Hayes, H. F. Sloan, and E. G. Fox, second-class honours; Sterling Tomlinson, C. W. L. Macnamara, R. W. Duncan, H. M. Carson, and J. C. M'Neilly.

Royal Free Hospital

On Dec. 3rd the annual dinner of this hospital was held at the Savoy Hotel under the chairmanship of Dr. Dorothy Hare. After honouring the loyal toasts the company stood in silence as a tribute to Sir Edwin Deller.

Proposing the health of the School and Hospital, Dr. Hare said that a small isolation block had been added to the hospital during the year, and that plans were being drawn up for a new nurses' home. An anonymous donation of £11,000 had made it possible to establish the "Free Woman's" lectureship in clinical medicine at the hospital medical school of which Dr. Una Ledingham was the first holder. Referring to the training of students, Dr. Hare thought their examination results once more demonstrated the dean's flair for picking winners, as there were many more applicants to join the school than could be accommodated. In describing the early flirtations of the hospital with the school before their permanent union she recalled that the professor of diseases of women was the last to admit women students to his wards yielding to compulsion, but the new generation were what she would term "freeminded." Dr. T. Jenner Hoskin, physician to the hospital, proposed the toast of the Guests and referred by name to Sir Alfred and Lady Webb-Johnson, Sir Walter Schröder, Dr. Elizabeth Courtauld, Mrs. Tate, M.P., and Miss Dorothy Sayers. He mentioned that Miss Sayers had used the hospital as the scene of one of her novels and praised the accuracy of her medical details. In reply Miss Sayers said that the lay population, who were still in a state of savagery, owed much to the medical profession from whom they demanded instant and spectacular cures, usually in the early hours of the morning. She also owed a debt to the profession as a writer of detective novels, but she regretted to say that if the tightening up of the poisons laws went on all villains would in future have to be doctors, as no one but they could get access to the poisons. In thanking the "women's medical G.H.Q." for their hospitality Sir Alfred Webb-Johnson referred to other famous hostesses in history such as Circe, Lady Macbeth, Lucretia Borgia, and Delilah, but seemed in a gay discourse to be under no personal apprehensions. As a member of the court of examiners of the Royal College of Surgeons of England he expressed his pleasure at meeting some of "Mr. Norbury's Young Ladies," while as surgeon to the Middlesex Hospital he recalled with pride that Miss Garrett, in her difficult early struggles, had been allowed to attend certain classes at the Middlesex. That struggle was now over and medical women had had maturity thrust upon them at the sword's point. He wished the school every success in the future and hoped that as it became large it would continue to be great.

Miss D. J. K. Beck proposed the health of the chairman and Miss Hare replied.

Hull Hospital for Women

Dr. Ethel Townend has given £5000 to the Hull Hospital for Women to provide increased accommodation for women of moderate means who wish to be attended by their own doctors.

Royal National Hospital for Rheumatic Diseases, Bath

A meeting will be held at the Vintners' Hall, Upper Thames-street, London, at 4 P.M. on Wednesday, Jan. 27th, to inaugurate an appeal for funds to rebuild this hospital. Sir Edward Grigg will preside and an address will be given by Lord Horder. Of the 1198 patients treated at the hospital last year 209 came from London.

Institute of British Surgical Technicians

On Dec. 3rd Mr. George Lansbury, M.P., presented certificates and prizes at the Chelsea Polytechnic to students who had been successful in the course of studies laid down by the Institute of British Surgical Technicians. Mr. F. J. Harlow, Ph.D., the principal, said it was the first time that a systematic training had been undertaken by the members of the surgical industry, and that the certificates were presented by the Chelsea Polytechnic in conjunction with the institute. Mr. Lansbury said that the fact that the young people in the industry had undertaken systematic study of anatomy and other sciences that were at the base of their work was a very hopeful sign, and he hoped that in the years to come one would not see patients fitted to appliances but appliances fitted *to* patients.

London Jewish Hospital Medical Society

A successful annual dinner was held by the society on Sunday last, Dec. 6th, when the president of the Society, Dr. Arnold Sorsby, presided over a gathering of nearly four hundred members and their guests. The health of the guest of honour, Lord Snell, chairman of the London County Council, was proposed by the Marquess of Reading, president of the London Jewish Hospital. Dr. E. Miller was responsible for the toast of the guests, for whom Sir John Herbert Parsons, F.R.S., responded. Mr. Coleman Smith proposed the toast of the hospital, to which Mr. J. Cofman-Nicoresti responded. An announcement was made by Dr. Maurice Sorsby that Mr. Smith had donated five thousand pounds to the hospital. Dr. L. H. Savin proposed the toast of the society and its president, to which the chairman responded. The proceedings terminated with a dance.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 28TH, 1936

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 1 (Oldham); scarlet fever, 2104; diphtheria, 1471; enteric fever, 18; pneumonia (primary or influenzal), 617; puerperal fever, 35; puerperal pyrexia, 122; cerebro-spinal fever, 11; acute poliomyelitis, 4; acute polio-encephalitis, 1; encephalitis lethargica, 5; dysentery, 26; ophthalmia neonatorum, 75. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Dec. 4th was 3132, which included: Scarlet fever, 1136; diphtheria, 994; measles, 13; whooping-cough, 328; puerperal fever, 14 mothers (plus 9 babies); encephalitis lethargica, 288; poliomyelitis, 3. At St. Margaret's Hospital there were 11 babies (plus 2 mothers) with ophthalmia neonatorum.

Deaths.—In 122 great towns, including London, there was no death from small-pox, 1 (0) from enteric fever, 7 (0) from measles, 7 (0) from scarlet fever, 9 (3) from whooping-cough, 48 (8) from diphtheria, 57 (19) from diarrhœa and enteritis under two years, and 44 (9) from influenza. The figures in parentheses are those for London itself.

Poole reported the only death from enteric fever. Cheltenham had 2 deaths from measles. Fatal cases of diphtheria were reported from 24 great towns: Liverpool 5, Hull and Sheffield each 4.

The number of stillbirths notified during the week was 272 (corresponding to a rate of 46 per 1000 total births), including 37 in London.

Medical Diary

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Monday, Dec. 14th.

United Services. 4.30 P.M. Major H. S. Blackmore: Air-raid Precautions with Special Reference to their Medical Aspects.

Tuesday.

Meeting of Fellows. 5.30 P.M.

Thursday.

Dermatology. 5 P.M. (Cases at 4 P.M.) Dr. J. E. M. Wigley: 1. Erythroplasie of Queyrat. Dr. H. Semon: 2. Bucco-labial Melanosis. Dr. H. W. Barber and Dr. P. M. F. Bishop: 3. Keratoderma Climactericum Treated with Œstrin. Dr. G. W. Bamber: 4. Phlebectasia. Dr. J. H. T. Davies: 5. Senear Usher Type of Pemphigus. Dr. H. W. Barber: 6. Lichen Planus with Bullous Lesions in the Mouth. Demonstration. Dr. J. H. T. Davies: Miniature Wood's Light.

Neurology. 8.15 P.M. Clinical Meeting at the Hospital for Epilepsy and Paralysis, Maida Vale, W.

HUNTERIAN SOCIETY.

Monday, Dec. 14th.—8.30 P.M. (Simpson's Restaurant, 2, Bird-in-Hand-court, Cheapside), Mr. A. E. Roche and Dr. D. E. Denny-Brown: Frequency of Micturition in the Adult.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, W.

Monday, Dec. 14th.—8.30 P.M., Dr. H. Letheby Tidy, Mr. G. Gordon-Taylor, and Dr. G. de Bec Turtle: Treatment of Hæmatemesis.

SOCIETY OF MEDICAL OFFICERS OF HEALTH, 1, Thornhaugh-street, W.C.

Friday, Dec. 18th.—5 P.M., Dr. Charles Hill and Dr. Maitland Radford: The Future of General Medical Practice.

NORTH LONDON MEDICAL AND CHIRURGICAL SOCIETY, Royal Northern Hospital, Holloway-road, N.

Wednesday, Dec. 16th.—9.15 P.M., Dr. R. R. Traill Chest Disease in Children.

CHELSEA CLINICAL SOCIETY.

Tuesday, Dec. 15th.—8.30 P.M. (Hotel Rembrandt, Thurloe-place, S.W.), Mr. Nigel Parsons: Brewing and Bacteria.

EUGENICS SOCIETY.

Tuesday, Dec. 15th.—5.15 P.M. (Rooms of the Linnean Society, Burlington House, Piccadilly, W.), Wing-Commander A. W. H. James, Dr. Caroline Maule, and Mr. J. Verney Quilliam: Voluntary Sterilisation—the Work of the Past Year.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c

ROYAL INSTITUTION, 21, Albemarle-street, W.

Tuesday, Dec. 15th.—5.15 P.M., Prof. E. Mellanby, F.R.S.: *Chemical Messengers of the Body.*

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane-road, W.

Monday, Dec. 14th.—2.30 P.M., Dr. R. D. Lawrence: *Diabetes and Diseases of Pancreas.*

Tuesday.—2 P.M., Mr. King, Ph.D.: pathological demonstration.

Wednesday.—Noon, clinical and pathological conference (medical). 2.30 P.M., clinical and pathological conference (surgical).

Thursday.—2.30 P.M., Dr. Duncan White: radiological demonstration. 3.30 P.M., Prof. J. M. Munro Kerr: Disproportion and Difficult Labour.

Friday.—2 P.M., operative obstetrics. 2.30 P.M., Prof. Seymour Barling: Acute Surgical Infections other than Bone. 3 P.M., department of gynæcology, pathological demonstration.

Daily, 10 A.M. to 4 P.M., medical clinics, surgical clinics or operations, obstetrical and gynæcological clinics or operations.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.

Monday, Dec. 14th.—10 A.M., skin clinic. 11 A.M., surgical wards. 2 P.M., operations, surgical, and gynæcological wards, medical, surgical, and gynæcological clinics.

Tuesday.—10 A.M., medical wards. 11 A.M., surgical wards. 2 P.M., operations, medical, surgical, and throat clinics.

Wednesday.—10 A.M., children's ward and clinic. 11 A.M., medical wards. 2 P.M., gynæcological operations, medical, surgical, and eye clinics.

Thursday.—10 A.M., neurological and gynæcological clinics. Noon, fracture clinic. 2 P.M., operations, medical, surgical, genito-urinary, and eye clinics. 4.15 P.M., venereal diseases.

Friday.—10 A.M., medical wards, skin clinic. Noon, lecture on treatment. 2 P.M., operations, medical, surgical, and throat clinics.

Saturday.—10 A.M., children's and surgical clinics. 11 A.M., medical wards.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, London, W.

Monday, Dec. 14th, to Saturday, Dec. 19th.—London Lock Hospital, 91, Dean-street, W., afternoon course in venereal diseases (open to non-members).—Hospital for Diseases of the Skin, Blackfriars-road, S.E., afternoon course in dermatology.—National Temperance Hospital, Hampstead-road, N.W., Wed., 8.30 P.M., Dr. S. Levy Simpson: Adrenal.—Brompton Hospital, S.W., M.R.C.P. course in chest diseases (twice weekly, at 5 P.M.).—City of London Hospital, Victoria Park, E., Wed. and Fri., 6 P.M., M.R.C.P. course in heart and lung diseases.—West End Hospital for Nervous Diseases, Gloucester Gate, N.W., afternoon M.R.C.P. course in neurology.—These courses are open only to members of the fellowship.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

Wednesday, Dec. 16th.—2 P.M., Dr. E. A. Cockayne: *Pink Disease.* 3 P.M., Mr. James Crooks: Development and Diseases of the Accessory Air Sinuses.

Out-patient clinics daily at 10 A.M. and ward visits at 2 P.M.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL, N.W.

Wednesday, Dec. 16th.—4 P.M., Mr. A. Clifford Morson: Hæmaturia.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

Friday, Dec. 18th.—4 P.M., Mr. F. R. Watkyn-Thomas: Vertigo.

ST. JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE, Ranelagh-road, S.W.

Friday, Dec. 18th.—4.30 P.M., Mr. Harold Barwell: The Ear, Nose, and Throat in Relation to the Rheumatic Diseases.

MANCHESTER ROYAL INFIRMARY.

Tuesday, Dec. 15th.—4.15 P.M., Prof. Daniel Dougal: Acute Salpingitis.

Friday.—4.15 P.M., Mr. Geoffrey Jefferson: Demonstration of Neuro-surgical Cases.

MANCHESTER HOSPITAL FOR CONSUMPTION, Deansgate.

Wednesday, Dec. 16th.—4.30 P.M., Mr. R. H. Smith: *Clinical Course and Diagnosis of Acute Mastoiditis.*

LEEDS GENERAL INFIRMARY.

Tuesday, Dec. 15th.—3.30 P.M., Dr. J. T. Ingram; Demonstration of Dermatological Cases, with Reference to General Principles in Treatment.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.

Wednesday, Dec. 16th.—4.15 P.M. (Royal Maternity and Women's Hospital), Prof. James Hendry: Delayed Labour.

Births, Marriages, and Deaths

BIRTHS

Bracken.—On Nov. 23rd, at Blackheath, the wife of Dr. J. P. Bracken, of a daughter.

Cameron.—*On Nov. 30th*, at Maidstone, Kent, *the wife of* Mr. Dugald Cameron, F.R.C.S., of a son.

Colley.—On Nov. 22nd, the wife of Dr. R. Colley, of Bath, of a son.

Early.—On Nov. 28th, at Shillong, Assam, the wife of Capt. E. P. N. M. Early, I.M.S., of a son.

Joll.—On Dec. 6th, at Harley-street, W., the wife of Mr. Cecil Joll, F.R.C.S., of a son.

Morris.—On Dec. 2nd, at Welbeck-street, W., the wife of Dr. C. W. Morris, of Elsworthy-road, N.W., of a daughter.

Oliver.—On Nov. 30th, at St. Peter's, Jersey, the wife of Dr. Gordon Oliver, of a son.

Rose.—On Nov. 26th, at Bombay, the wife of Major G. W. Rose, R.A.M.C., of a son.

Scott.—On Nov. 30th, the wife of Mr. T. G. Scott, F.R.C.S., Speen, Newbury, of a son.

Spero.—On Nov. 25th, at Blackheath, the wife of Surg. Lt.-Comdr. L. P. Spero, R.N., of a daughter.

MARRIAGES

Gray—Gannaway.—On Dec. 8th, 1936, at St. James's Church, Spanish-place, Edward Emile Delisle Gray, M.D., M.R.C.P., son of the late Dr. and Mrs. St. George Gray, to Lilian Maud, daughter of Charles Henry Gannaway, and the late Mrs. Gannaway.

Hadfield—MacDougall of MacDougall.—On *Dec. 2nd in* St. John's Cathedral, Oban, Stephen John Hadfield, M.B. Camb., to Jean Louisa Morag, second daughter of Col. MacDougall of MacDougall, of Oban.

Maddock-Jones—*Joiner*.—On Dec. *7th*, at Leyton, Essex, A. Maddock-Jones, M.R.C.S., to Kathleen Jean, daughter of the late Mr. and Mrs. Gordon W. Joiner, of Leyton.

DEATHS

Bourke.—On Dec. 7th, in London, Major-General Sir George Deane Bourke, K.C.M.G., C.B., R.A.M.C. (retired), aged 84.

Cash.—On Nov. 30th, at Hereford, John Theodore Cash, M.D. Edin., LL.D., F.R.S., aged 82 years.

Christie.—On Dec. 2nd, at Edinburgh, Dugald Christie, C.M.G., F.R.C.P., F.R.C.S. Edin., *Missionary of the Church* of Scotland in Manchuria, in his 82nd year.

Greenwood.—On Friday, Dec. 4th, at Allington, Maidstone, Alfred Greenwood, M.D., B.Sc., D.P.H., Barrister at Law, Medical Officer of Health for the County of Kent, aged 63.

Ionides.—On Dec. 2nd, at Hove, Theodore Henry Ionides, M.B. Lond., F.R.C.S. Eng., aged nearly 71.

Macfee.—*On Dec. 5th*, at *Hampstead, London*, John Macfee, M.D. Glasg., aged 92.

Stratton.—On Nov. 30th, in [illegible] Ernest Stratton, M.D. Lond., of [illegible]

Thomason.—On Dec. 1st, [illegible] M.B. Birm., of Fillongley, near [illegible]

Wallis.—On Nov. 30th, at [illegible] ymour Wallis, M.R.C.S. Eng., aged 68.

Whitwell.—On Dec. 1st, Alfred Frank Whitwell, M.R.C.S. Eng., of Shrewsbury, aged 81.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

NOTES, COMMENTS, AND ABSTRACTS

THE DOCTOR'S MANDATE IN PARLIAMENT

AN ADDRESS BY SIR F. FREMANTLE, M.D., M.P.*

Sir James Crichton-Browne introduced Sir Francis Fremantle in happy phraseology, expressing his belief that the knowledge existed in Europe and throughout the world that our own country, in spite of its failings, had, as compared with other countries, a healthier and a stronger population.

Sir Francis Fremantle commenced his address by a biographical enumeration of the doctors of medicine who have sat in Parliament—a considerable number, seeing that 84 medical Members of Parliament were recorded in an interesting medical parliament roll, compiled by Dr. Samuel Clippingdale, and published in the *British Medical Journal* in 1910. Sir Francis told of the distinguished part in affairs played by such doctors, to select some from his list, as Samuel Turner, who fought on the King's side in the Civil War; William Petty, professor of anatomy at Oxford and of music in Gresham College, London, and physician to Charles II: Nicholas Barbour, to whom the origin of fire insurance companies is attributed; John Radcliffe, the founder of the Radcliffe Infirmary, Library, and Observatory at Oxford; Baron Dimsdale, who inoculated the Empress Catharine and the Russian Court against small-pox; and Thomas Wakley, first editor of THE LANCET, and his vigorous ally, Joseph Hume, economist. Coming to more modern times, he mentioned, among many others, John Batty Tuke, Balthazar Walter Foster (Parliamentary Secretary to the Local Government Board, and later created Lord Ilkeston), Sir William Collins, and Lord Moynihan. Sir William Collins he noted as being fortunately still with us, and chairman of the Chadwick Trustees. Among contemporary doctors in either House, doing valuable service, he enumerated Lord Dawson of Penn, Lord Horder, Dr. Elliot, Sir Henry Jackson, and Dr. Addison.

After a brief summary of the opportunities which a spreading interest in public health had given to the doctor in Parliament in the period just preceding the war, he described the developments which had followed the creation of the Ministry of Health. He said:

PARLIAMENTARY ACTIVITY

"Our post-war health legislation has developed the whole machinery of public health to a remarkable extent, throwing the burden and responsibility of its administration on local authorities, with generous expert and financial assistance from the Government. If we look through the measures that have been passed since the war and that concern more directly the health of the people, we are struck with the variety and extent of them. In the year 1919 there were passed at least five most important measures. The first was that which created the Ministry of Health, the second was the Nurses Registration Bill, which made the nursing profession into a recognised, and ordered whole; and then there were the two great Housing Bills of Dr. Addison and a very important Rent and Mortgage Interest Restriction Act. In the year 1920 we had a Census Act which put the Census on a permanent footing, to be taken automatically every ten or possibly every five years, as decreed by Order of Council. There was a Dangerous Drugs Act, and there were National Health Insurance, Unemployment Insurance, and War Pensions Amending Measures. In 1921 we had the Dentists Act, which did for the dental profession what the Nurses Registration Act had done for the nursing profession. We had a further Housing Measure, a Public Health Officers' Measure, and a Tuberculosis Measure, an Unemployment Insurance Measure to increase the benefits, and a War Pensions Amending Measure. In 1922 we amended the Allotments Acts and we amalgamated and amended the Unemployment Insurance Acts. In 1923 we amended the Dangerous Drugs and Poisons Act. Mr. Neville Chamberlain introduced and secured the passing of his great Housing Bill, with a large subsidy for housing, both for local authorities and for private enterprise, and we amended the Rent and Mortgage Interest Restriction Act and the Workmen's Compensation Act.

In 1924 we had a further Housing Bill, with Mr. Wheatley's subsidy for housing under the local authorities. In 1925 we had further measures dealing with allotments and dangerous drugs, an important measure with regard to the guardianship of infants, further measures as regards housing, a very important measure for rating and valuation, a measure as regards merchant shipping, introducing the International Labour Conventions, a measure to amend the Public Health Act, and a Teachers (Superannuation) Measure, going to the root of the welfare of the teachers, enhancing the credit of the teaching profession and therefore indirectly the standard of education of the country. We also had a measure consolidating the Town Planning Acts, and a very vital measure, Mr. Chamberlain's Widows', Orphans', and Old Age Contributory Pensions Act. In 1926 we had a measure for the adoption of children, a Coroners (Amendment) Act, a Births and Deaths Registration Measure, and a minor but important Housing (Rural Workers) Measure; the Small Holdings and Allotments Act was amended, and we passed a Bill for the inspection and registration of midwives and maternity homes and a measure with regard to the sale of food (weights and measures). In the year 1927 we amended the Mental Deficiency Act, we enlarged the previous measure with regard to maternity homes by a Nursing Homes Registration Act, we consolidated the Poor Law, and we dealt with other amending measures. In 1928 we consolidated the Foods and Drugs (Adulteration) Acts, we amended the National Health Insurance Act, and we dealt further with rating and valuation, as a preliminary to local government reform. In 1929 Mr. Chamberlain passed his vast Local Government Bill, to amend, to extend, and to grant relief of various kinds, with a corresponding measure for Scotland. In 1930 we had the second Labour Government, and we passed a Housing Measure, largely a non-party measure, to do away with the slums. We had an important Mental Treatment Act, a Poor Law (Consolidation) Act, and certain measures to amend Acts already mentioned.

RECENT LEGISLATION

In 1931 the National Government, despite their preoccupation with urgent matters in connexion with the financial crisis, were still able to pass another Housing (Rural Authorities) Measure, three Unemployment Insurance Acts of one kind or another, and the Yarmouth Naval Hospital (for Lunatics and Mental Defectives) Act. In 1932 we had a Children and Young Persons Measure of great importance. We had further measures to deal with dangerous drugs, national health insurance, and planning, and a Merchant Shipping Bill to deal with the Safety and Load Line Convention. In 1933 we consolidated Children and Young Persons Measures; we had a further important Housing Measure, to end the subsidies under the 1923 and 1924 Acts and therefore to leave only the subsidies under the Slums Measure of 1930; we had a Pharmacy and Poisons Measure, a further and very important

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* A Chadwick public lecture delivered at the Great Hall, B.M.A., on Nov. 24th, 1936.

Rent and Mortgage Interest Restrictions Act, and a measure for the humane slaughter of animals. In the year 1934 we had a further amendment of the unemployment provisions, we had an important Water Supplies Measure to deal with the exceptional shortage, and we had a Workmen's Compensation (Coal Mines) Measure. In 1935 we had the great Housing Bill to deal with overcrowding and complete the general structure to deal with the housing problem. We had the Restriction of Ribbon Development Act, and we had a great measure for consolidating the Unemployment Insurance Acts. This year we have dealt with the Hours of Employment Conventions with regard to women, and we have consolidated the Old Age Pensions Acts, the National Health Insurance Acts and Widows', Orphans', and Old Age Contributory Pensions Acts. We brought in and passed the first of a great series of measures to consolidate the Public Health Acts, which takes 228 pages, and a corresponding London Act that takes 251 pages, and a consolidation of the Housing Acts which takes 173 pages, so you can understand that they gave lawyers plenty of occupation, and, no doubt, plenty of remuneration. We have also had a Shops (Sunday Trading Restriction) Act, and an Act dealing with midwives. Such is the actual record of the tasks with which we have had to deal up to date this year.

HEARTENING FIGURES

" The law has been largely simplified by consolidation. The members of the auxiliary professions, nurses, midwives, dentists, architects, and health visitors, have been recognised and helped. Probably the greatest measure of all was the Local Government Act of 1929, with its block grant, the conversion of the Poor Law into Public Assistance under county councils and county borough councils, and the systematic rearrangement of local administration. The effects of this work are at least reflected in the records of the twenty-five years of His late Majesty's reign, and I should like to bring to your notice some of the figures which show how far we have travelled during that quarter of a century. I will give you the figures in numbers rather than percentages, because, to my mind, they are always more impressive. Taking the number of deaths on an average during the ten years preceding King George V's accession to the throne and comparing it with the last year of his life, we find that the deaths from diphtheria diminished from 6092 to just over 4000, deaths from diarrhœa and enteritis diminished from 18,000 to under 5000, deaths from enteric fevers diminished from 3000 to 159, deaths from measles diminished from 10,500 to under 4000, deaths from scarlet fever diminished from 3600 to 960, deaths from small-pox diminished from 429 to only 6, deaths from tubercle (respiratory) diminished from nearly 40,000 to 26,000, deaths from other forms of tubercle diminished from just under 17,000 to 5000, and deaths from whooping-cough diminished from 9500 to 2000. Besides the marked decline or elimination of these diseases, the death-rate fell by nearly 4 per thousand and the infant mortality-rate by 71 per thousand, and in this one-quarter of a century the expectation of life increased by some seven years."

THE MEDICAL MEMBER

Sir Francis then sketched the work which the Medical Committee had done, mentioning its activities in association with the General Medical Council, the League of Nations' health organisation, the Royal Society of Medicine, the British Medical Association, and the Medical Research Council. The committee had taken up, he pointed out, such varying subjects as an Opticians' Bill, fatal administrations of anæsthetics, various aspects of the Factory Bill, and questions relating to coroners, dentists, anatomists, pharmacists, midwives, and the sterilisation of the unfit, " a remarkable hotchpotch showing the widespread interest of our work," and gave his reasons for thinking that on general policy and administration, a medical Member of Parliament is not, as yet, sufficiently recognised, in spite of unique opportunities for acquiring knowledge of the conditions of the people and of their mentality.

" The medical man, he said, takes Party at its worth, essential for practical purposes but reflecting only tendencies, between which he would naturally preserve the middle path of a liberal conservatism, with a full use of State machinery and resources on the one hand and encouragement of private enterprise and initiative on the other. He sees the limitations of any policy and in his mind has achieved a synthesis which is best expressed by an all-party Government; but he knows that such a placid system, without effective opposition, must in the end make for stagnation, and so he throws in his lot and influence on one side or the other of the central line. If he aims at high office he must avoid much occupation at first with health matters, or he will be ' damned as an expert.' By such avoidance he gains experience and credit, and may so, in the end, be of the greatest service to the State, even in health matters, as one hopes the new Secretary of State for Scotland will be. But in the rank and file there is much for the doctor to do with his mandate. Let me take one point, which is constantly impressing itself on one's mind: the frequent reference to research. Usually the word ' research ' is used loosely, without much understanding of its meaning, for any kind of reference to books and delay in action. Sometimes it is real research, but as often as not it is only a boiling-up of what other people have said. The medical man knows the difference between genuine research and such sham collation of facts, which often goes under the name of research. It is his duty to carry on research in the political sphere and to help others to carry it on, in order to get down to the bedrock of facts and their causation, and, while full of enterprise and imagination, as a research worker must be, he should keep steadily, as is necessary in the political sphere, to the end to be aimed at. While averse from in any way trimming the facts to the end at which he is aiming, he should at the same time refrain from dissipating his energies or those for which he is responsible in useless and frittering researches that are not of real value for the ends of policy and activity. That is one of the most difficult tasks, and one in which the medical man has a particularly strong conscience, which he should exercise.

" On the medical man falls the privilege of dealing fearlessly, in private and in public, with the awkward topics—sexual questions and marriage, betting, licensing, Sunday trading, and moral and ecclesiastical problems—subjects instinct with pride, principle and, in the proper sense of the word, with prejudice. He, almost alone in Parliament, has no right to shirk the difficulties of birth control and other national dangers. He, more especially, can see disease in the body politic at an early stage and prescribe for its elimination. His whole desire and influence must be for peace. His voice should be heard and his part should be of special value in deciding root policy affecting peace and war, strikes and conciliation, as indeed any other matter—finance, education, the fine arts—if he will take the trouble to study them and their background. He stands, above all, for the proper blending of material and spiritual values, with the spirit, its encouragement and satisfaction, as the dominant note and object of the doctor's mandate in Parliament."

A debate followed in which such questions as legislation on patent medicines, on the notification of vermin, and the housing situation, especially in London, and other important topics were discussed, which gave Sir Francis an opportunity of explaining the machinery by which private Bills could be introduced.

The meeting closed with cordial votes of thanks to the lecturer and the chairman.

L.C.C. AND UNEMPLOYED MARCHERS

REPORT was made on Tuesday to the London County Council on the arrangements made for the various groups of marchers expected in London at the beginning of last month. Technically they are regarded as wayfarers, and if destitute of accommodation they are subject to the public assistance authority, but in this case the consent of the Minister of Health was obtained to mitigate the usual order in regard to searching, detention, and tasks of work. The total number of men was 1713, of whom 141 were blind. They were housed in seven non-residential training centres in which the workshops were dismantled and cooking facilities revised. Various metropolitan borough councils agreed to parties visiting the public baths and underclothes were washed at institution laundries. A medical officer attended at each centre with medicines and dressings and a supervising officer slept there. All the dormitories were heated; the men slept on the floor, three blankets and if required a nightshirt being issued to each. The usual casual ward diet was provided with liberty to supplement from outside sources. No individual tasks of work were required, but the marchers (the blind contingent excepted) were called upon to clean their quarters, the dining-rooms, lavatories, and staircases. The total cost for the 1713 men was estimated at £1080.

HERALDIC AND OTHER EMBLEMS

To the Editor of THE LANCET

SIR,—May I appeal through your columns to those who have charge of the stationery, official documents, and invitation cards issued by the important institutions and departments throughout the country to give more attention to the artistic merits of the heraldic emblems which they issue. For many years I have collected some thousands of these devices and to me it is quite evident that many of those issued to-day do not bear the crucial test of magnification. As specimens of alleged artistic printing (remembering the praise bestowed thereon: "First of arts, without thy light, all other arts would sink in night") many are atrocious, especially the gaudy coloured devices. The black and white devices on the other hand are more frequently worth close attention and magnification. For example, the device of the Chelsea Clinical Society (I know nothing of its origin), although simple black and white, is excellent. Not all of us are philatelists; personally I have found a little pleasure for years in examining heraldic emblems.

I am, Sir, yours faithfully,

London, Dec. 4th. BLANCUS.

THE C.S.M.M.G. DIRECTORY

THERE comes a time when a professional directory becomes set in its ways, having learnt by experience what its customers want. The register of members of the Chartered Society of Massage and Medical Gymnastics had not quite reached that stage, for the 1936 edition has made a change which turns the register into a directory. Hitherto the annual issue has contained only the names, addresses, and qualifications granted by the Society. In the present issue each member of the Society has been given the opportunity to include at will additional information under four headings: (1) qualifications other than those of the C.S.M.M.G., (2) special treatments undertaken, (3) appointments held, (4) name of training school. The directory now approaches closely to the form of the Medical Directory and will doubtless be found more serviceable for purposes of reference. Separate from the directory of members in practice is an alphabetical list of members not practising or whose addresses cannot be verified. The directory can be obtained from the offices of the Society, Tavistock House (North), Tavistock-square, London, W.C.1, price 4s.

NEW PREPARATIONS

"SULPHONAMIDE-P" (*p*-AMINOBENZENESULPHONAMIDE).—The British Drug Houses Ltd., inform us that they have been making this substance experimentally for some time past, and have developed a process for its manufacture, in a state of purity, on an industrial scale. During the experimental stages attention was paid particularly to its production in a pure state, and a paper on this aspect of the subject, by a member of the staff of the B.D.H. analytical laboratory, has lately appeared in the *Quarterly Journal of Pharmacy and Pharmacology* (1936, ix., 560). The purified substance is issued in the form of tablets, each of 0·5 gramme, for use in the treatment of streptococcal infections such as puerperal septicæmia and erysipelas. These tablets, which are available in bottles of 25 and 100, are administered orally, and the dosage recommended is up to 3 g. (six tablets daily) for average cases; but for more serious cases, where intensive treatment is necessary, as much as 5 g. daily may, it is stated, be given with perfect safety. Members of the medical profession wishing to make trial of these tablets of Sulphonamide-P will be supplied with the necessary material free of charge on application to British Drug Houses Ltd., Graham-street, City-road, London, N.1.

VEGEMUCIN is a mixture of vegetable mucins recommended to counteract acidity in the stomach. The action of the mucins is purely physical: they adsorb hydrochloric acid, and, it is said, form a protective film over the gastric mucous membrane, before being excreted unchanged in the fæces. Their advantage over alkalis is that they do not, like sodium bicarbonate, induce further secretion of acid, and it is suggested that Vegemucin should be used, in varying quantities, in cases of heartburn, hyperacidity, and peptic ulcer. The preparation is a coarse powder flavoured with chocolate and is given in doses of ½–1 teaspoonful two or three times daily or oftener. The makers are H. R. Napp, Ltd., 3, Clements Inn, W.C.2.

PANOPSIN, prepared from pancreatic enzymes, is put forward as an aid to digestion, especially where there are signs that this is incomplete and corresponding symptoms of dyspepsia. The amylopsin it contains is described as the strongest starch-splitting enzyme known, being six times more active than the aspergillus fungus product, and its action on foodstuffs is assisted by trypsin and lipase. The manufacturers, Endocrines-Spicer, Ltd. (Watford, Herts), advise that their Panopsin tablets should be taken just before meals.

In HEPFEROL a liver extract is associated with iron in readily assimilable ("neutral colloidal") form. It is prepared by A/s Serpens, of Copenhagen, and is recommended for "all cases of pernicious anæmia and in all anæmic conditions which do not respond sufficiently to iron therapy alone." It consists of granules with a pleasant flavour, and it does not stain the teeth. The English distributors are Coates & Cooper, Ltd., 94, Clerkenwell-road, E.C.1.

The Glaxo Laboratories Ltd. (Greenford, Middlesex) announce that they have reduced the price of Farex, their "reinforced" cereal food for infants, children, adults, and invalids. It is stated to contain substantial quantities of calcium and iron, 1900 international units of vitamin A per oz., 625 of vitamin D per oz., and vitamins B_1 and B_2.

THE LONDON FEVER HOSPITAL

MR. W. ELLIOT DIXON (secretary, London Fever Hospital) writes: Information in regard to the accommodation available at this hospital was recently circulated to members of the medical profession in the London area. There have, as a result, been so many inquiries in regard to private rooms that we shall be most grateful if you will allow us space in your columns to make it known that the fees for such accommodation here are from seven to ten guineas a week inclusive.

Christmas Seals.—For the fourth year in succession a sale of Christmas seals has been arranged under the auspices of the National Association of the Prevention of Tuberculosis to provide tuberculosis care committees with funds. A very determined-looking Father Christmas is striding across the seal this year, and we hope that many of our readers will allow him "right of way" on their Christmas parcels and letters. If they wish they may obtain the seals from the secretary of the Christmas Seal Sale, Tavistock House, Tavistock-square, London, W.C.1, at ½d. each or 4s. for a hundred.

Appointments

Byrne, E. A. J., M.D. Belf., has been appointed Senior Resident Medical Officer at the Birkenhead Municipal Hospital.

Dollar, Jean, M.S. Lond., F.R.C.S. Eng., D.O.M.S., Part-time Ophthalmic Surgeon for Middlesex.

Edwards, A. Tudor, M.D., M.Ch. Camb., F.R.C.S. Eng., Surgeon in Charge of the Department of Thoracic Surgery at the London Hospital.

Esher, F. J. S., M.B. Birm., D.P.M., Medical Superintendent of the proposed Sheffield Mental Deficiency Colony.

Ling, T. M., B.M. Oxon., M.R.C.P. Lond., Police Surgeon to the Bristol Constabulary.

Vaizey, J. M., M.D., M.R.C.P. Lond., Medical First Assistant and Registrar to the London Hospital.

London County Council Hospital Staff.—The following appointments and transfer are announced. A.M.O. (II.) = Assistant Medical Officer Grade II. Temp. D.M.O. = Temporary District Medical Officer.

Hogarth, J. C., M.B. Glasg., A.M.O. (II.), Eastern;
Cann, A. M. R., M.B. Lond., A.M.O. (II.), South-Western;
Savage, O. A., M.R.C.S. Eng., A.M.O. (II.), Grove;
Birrell, N. V., M.B. Glasg., D.P.H., A.M.O. (II.), South-Eastern;
Hudson, E. H., M.B., M.R.C.P. Lond., Visiting Medical Officer, St. George's Home;
Clift, A. F., M.R.C.S. Eng., M.C.O.G., Part-time A.M.O., Mat. Dept., St. Olave's;
Lindsay, D. M., M.D. Glasg., M.C.O.G., Part-time A.M.O., Mat. Dept., St. Leonard's;
Alabaster, G. H., M.D. Birm., F.R.C.S. Edin., M.C.O.G., Part-time A.M.O., Mat. Dept., Hackney;
Kaines-Lee, Gwendolen E., M.B. Melb., Part-time A.M.O., Mat. Dept., St. Mary, Islington;
Tilbury, Robert, M.R.C.S. Eng., Temp. D.M.O., New Cross;
Ruben, Harry, M.B. Dub., Temp. D.M.O., Bellingham and Downham;
Eban, Isaac, M.B. Belf., D.M.R.E., Temp. D.M.O., Lambeth;
Fenton, M. J., M.B. Sheff., Temp. D.M.O., Lambeth;
McFadyean, Kenneth, M.R.C.S. Eng., Temp. D.M.O., Lambeth;
Houghton, L. E., M.D. Camb., Medical Superintendent, Colindale;
Muir, Clement, M.B., M.R.C.P. Edin., Senior A.M.O. (II.), North-Western;
Grant, Alan, M.B. Aberd., A.M.O. (II.), Park.

Certifying Surgeons under the Factory and Workshop Acts: Dr. J. Donovan (Crewe District, Cheshire); Dr. J. D. Robertson (Highworth District, Wilts).

Vacancies

For further information refer to the advertisement columns

Aberdeen Royal Hospital for Sick Children.—Hon. Asst. Surgeon to Ear, Nose, and Throat Dept.

Aberdeen University.—Lecturer in Department of Medicine, £400–£575.

Acton Hosp., W.—Cas. O., at rate of £150.

Ashton-under-Lyne District Infirmary.—H.S., at rate of £150.

Bedford County Hospital.—First H.S., at rate of £155.

Bedfordshire County Council.—Asst. County M.O.H., &c., £800.

Birmingham City.—Asst. M.O.H., £600.

Birmingham, Erdington House.—Asst. Res. M.O., £300.

Bolton Royal Infirmary.—H.P. and two H.S.'s, at rate of £200 and £150 respectively.

Brighton, Lady Chichester Hosp., Hove.—Sen. and Jun. H.P., at rate of £100 and £50 respectively.

Brighton Municipal Hospital.—Third Res. Asst. M.O., £300.

Bristol General Hospital.—Two H.P.'s, three H.S.'s, Res. Obstet. O., H.S. to Spec. Depts., each at rate of £80. Also Cas. H.S., at rate of £100.

Bristol, Southmead Municipal General Hosp.—Jun. Asst. Res. M.O., at rate of £200.

Bristol University, Preventive Medicine Dept.—Laboratories Asst. Clin. Pathologist, £375.

Buxton, Derbyshire, Devonshire Royal Hosp.—H.P., at rate of £150.

Cambridge, Addenbrooke's Hospital.—H.P., at rate of £130.

Cardiff, Welsh National School of Medicine.—Part-time Lecturer in Anæsthetics at rate of £525.

Chichester, Royal West Sussex Hosp.—Sen. H.S., £175.

Colchester, Essex, County Hosp.—H.S., £175.

Doncaster Royal Infirmary and Dispensary.—Res. Anæsthetist, at rate of £175.

Glasgow University.—Gardiner Lectureship in Pathology of Diseases of Infancy and Childhood.

Gloucestershire Royal Infirmary.—Hon. Anæsthetists. Also H.S., at rate of £150.

Hertford, County Hosp.—H.P., at rate of £150. Also Hon. Asst. Anæsthetist.

Hospital for Tropical Diseases, Gordon-street, W.C.—H.P., at rate of £120.

Hospital of St. John and St. Elizabeth, 60, *Grove End-road, N.W.*—Res. H.P., at rate of £100.

Leicester, City Mental Hosp., Humberstone.—Locum Tenens A.M.O., 10 gns. weekly.

Leeds University, Faculty of Medicine.—Second Surg. Tutor £400.

Liverpool Dispensaries.—Res. M.O., £300.

Liverpool, Hahnemann Hospital, Hope-street.—Res. M.O., at rate of £120.

London County Council.—Two Radiologists, each £900. Part-time Radiologists, at rate of £125. Also Temporary Visiting M.O., £200.

London Hosp., E.—Surg. First Asst. and Reg., £300.

London University.—University Chair of Pathology, £2000.

Manchester, Ancoats Hospital.—Combined H.S. (Aural) and H.P., at rate of £100.

Manchester, Christie Hosp. and Holt Radium Institute.—Res. M.O., at rate of £150.

Manchester Ear Hospital, Grosvenor-square, All Saints'.—Visiting Anæsthetist.

Manchester Hosp. for Consumption and Diseases of the Throat and Chest.—Res. M.O. for Ear, Nose, and Throat Dept. £200.

Manchester, Park Hosp., Davyhulme.—Res. Obstet. Officer, £400.

Manchester, Royal Children's Hosp.—Res. M.O. and Res. H.S., at rate of £150 and £100 respectively.

Manchester, Withington Hospital.—Sen. Cons. Obstet. and Gynæcologist, at rate of £400.

Marie Curie Hosp., 2, Fitzjohn's-avenue, N.W.—Res. M.O., £100.

Metropolitan Hospital, Kingsland-road, E.—Asst. M.O. to Physiotherapeutic Dept.

National Temperance Hospital, Hampstead-road, N.W.—Cas. O. and H.S., at rate of £120 and £100 respectively.

Newcastle General Hosp.—H.S. and H.P., each at rate of £150.

Newcastle-upon-Tyne, Royal Victoria Infirmary.—Res. H.P.'s and H.S.'s to Special Depts., each at rate of £50. Two Anæsthetists, each at rate of £200, Two H.P.'s for Leazes Hospital, each at rate of £100. Also Assistant to National Radium Centre, £250.

Newport, Royal Gwent Hosp.—H.S. to Fracture and Orthopædic Dept., at rate of £135.

North Riding of Yorkshire C.C.—Asst. Tuber. M.O., £600.

Oldham, Boundary Park Municipal Hosp.—Res. Asst. M.O., at rate of £200.

Pontefract General Infirmary.—Res. M.O., at rate of £150.

Prince of Wales's General Hosp., N.—Jun. H.S., £90.

Prison Service.—M.O. Class II., £525.

Reading, Royal Berkshire Hosp.—Bio-Chemist, £400. Also two H.S.'s, each at rate of £125.

Rochdale, Birch Hill Hospital.—Jun. Res. M.O., at rate of £225.

Rochester, St. Bartholomew's Hosp.—H.P., at rate of £150.

Royal Cancer Hospital, Fulham-road, S.W.—Sec. Asst. Pathologist, £250.

Royal Masonic Hospital, Ravenscourt Park, W.—Res. Surg. O., at rate of £250.

Royal Northern Hosp., Holloway, N.—H.S., at rate of £70.

Salford City.—Asst. Clin. Tuber. O., £500.

St. Leonard's-on-Sea, Buchanan Hosp.—Jun. H.S., £125.

St. Paul's Hosp. for Urological and Skin Diseases, Endell-street, W.C.—H.S., at rate of £100.

St. Thomas's Hosp., Medical Unit, S.E.—First Asst., £500–£600.

St. Thomas's Hospital, S.E.—Chief Asst. to Children's Dept.

Sheffield Royal Hosp.—Vacancy on Res. Med. Staff, at rate of £80.

Southampton County Borough.—Clin. V.D.O., Pathologist, and Asst. M.O.H., £750.

Southampton, Royal South Hants and Southampton Hosp.—Hon. Clin. Asst. to Dermatological Dept.

South-Eastern Hospital for Children, Sydenham, S.E.—Res. M.O., at rate of £100.

Southend-on-Sea General Hosp.—Res. Obstet. Officer, at rate of £100.

South London Hosp. for Women, Clapham, S.W.—Asst. Gynæcological Surgeon. Also Clin. Asst. for Gynæcological Out-patients.

Stoke-on-Trent, Longton Hosp.—H.S., £160.

Sunderland Children's Hosp.—H.S., £120.

Swansea County Borough.—Asst. M.O., £500.

Tewkesbury Borough, &c.—M.O.H., £800.

West Bromwich, Hallam Hosp.—H.P., at rate of £200.

Willesden General Hospital, Harlesden-road, N.W.—Hon. Ophth. Surgeon. Hon. Clin. Assts. to Out-patients' Dept. Also Cas. O., at rate of £100.

Woolwich and District War Memorial Hospital, Shooters Hill, S.E.—H.S., at rate of £100.

The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Glasgow, West, Llangollen (Denbigh), and Brigstock (Northampton).

ADDRESSES AND ORIGINAL ARTICLES

LOBECTOMY IN BRONCHIECTASIS

BY W. H. C. ROMANIS, M.B., M.Chir. Camb., F.R.C.S. Eng.
SURGEON TO ST. THOMAS'S HOSPITAL AND THE CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST; AND

T. H. SELLORS, D.M., M.Ch. Oxon., F.R.C.S. Eng.
ASSISTANT SURGEON TO THE CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, QUEEN MARY'S HOSPITAL, AND THE ROYAL WATERLOO HOSPITAL

DURING the last few years the development of the operation of lobectomy has been largely responsible for the increasing employment and popularity of surgery as an important method of treatment in bronchiectasis. Indeed, excision of the diseased area of lung is the only measure that at the present time holds any chance of permanent alleviation in established cases, and it is gradually but steadily replacing all such previous methods as cautery excision and collapse procedures.

Indications

The possibilities of lobectomy are, however, limited by the extent of the disease and the ability of the patient to withstand a major operation. In practice, the first factor in the selection of suitable cases for this operation is to limit it to those in whom the disease is localised and in whom Lipiodol filling of the bronchial tree shows that the dilatations are confined to one lobe, nearly always the lower lobe. Unfortunately such cases are at present comparatively rare, though there is hope that with increasingly accurate diagnosis and earlier resort to surgery they may become commoner. This strict localisation is not an absolute criterion, for on a few occasions the whole of one lung, or the lower lobes of both lungs, have been successfully removed, but the instances in which this is possible are not sufficiently common to justify their being regarded as routine procedures. Another criterion which must be rigidly applied in the selection of cases is a consideration of the patient's general condition as shown by the amount of general toxicity and sepsis; for the presence of this toxæmia to any considerable extent greatly increases the risk of the operation. The removal of a portion of the lung may be effected by a one- or two-stage operation. Our own preference is distinctly for the single-stage operation, and the present series of cases is based entirely upon this type. Several series of figures have been published recently, notably by Tudor Edwards and Price Thomas, and by Nelson and Roberts, illustrating the excellent results and low mortality that can be obtained by this one-stage operation, but on the other hand it must be admitted that the results recorded by Sauerbruch and John Alexander, for example, offer a certain amount of support for the delayed, or two-stage, operation.

The second and equally important factor in selecting those cases as suitable for lobectomy, as mentioned above, lies in the patient's general condition. Here wide variations will be encountered, varying from patients—usually young ones—who exhibit little or no signs of toxicity or sepsis, and who look fit and are able to lead comparatively active lives, to those who obviously are profoundly toxæmic, with clubbing of the fingers (an important point), fœtor, pale muddy complexion, weakness, and emaciation: it is important to draw a very definite line of distinction between these two classes. Roughly speaking, the degree of toughness and adherence of the lobe, and therefore the mechanical difficulties of the operation to remove it, correspond with the degree of toxicity of the patient, so that in general a toxic patient will also be faced with a more severe and difficult operation.

The first class, those patients who evidence no sign of toxicity and whose disease has been recognised almost more on radiological rather than clinical evidence, comes to operation facing a risk that is definitely lower than that of many major abdominal operations, for example gastrectomy. The question when and whether operation is justifiable in these early and sometimes almost symptomless cases is not easy to answer, since the period between an early original diagnosis and the onset of the definite classical symptoms is a variable factor. It is, however, more than probable that all cases of bronchiectasis, however slight, are slowly progressive, and that sooner or later the patient's life will be ended by a lingering and unpleasant process after a prolonged period of suffering both for himself and his relations. If every case that is diagnosed were to be submitted to immediate operation it would be possible to obtain a very low mortality-rate, but since many years may elapse before a child develops the almost inevitable disabling features of the disease, we feel that such cases can certainly be treated medically and conservatively and observed for some time until the definite downward progress and the suggestion of toxic symptoms call for the consideration of surgery. We look upon a figure of 17 per cent. as expressing the operative mortality under these latter conditions.

The second class of the toxic patients presents a different problem, and the extreme instances of this will be patients suffering grossly from the effects of toxic absorption, and usually with much more advanced disease in the lung. This class will present the typical advanced clinical features of the disease—clubbing, pallor, breathlessness, and myocarditis, in addition to the cough, abundant sputum, and lung features, and are often too ill to withstand even a minor surgical intervention. As an intermediate group there is a large class of patients who give a history of progressive ill health, and exhibit definite signs of toxicity, with fœtid sputum, cyanosis, clubbing of the fingers, recurrent hæmoptysis, dyspnœa, loss of weight, &c., but who are obviously fairly fit. In these advanced cases lobectomy may give excellent results, but the operation is going to be more hazardous and difficult, and we regard its risks in this advanced state of the disease as being about 35 or 40 per cent. It will appear, moreover, that the general toxæmia of the patient is invariably greater than a clinical estimation would give. In this connexion during anæsthesia before the operation we have several times noticed a sign which we regard as of grave significance. This is the onset of a toxic cyanosis even in the presence of unobstructed air-passages and a plentiful oxygen supply. On more than one occasion we have returned a patient to bed without starting the operation when this phenomenon has occurred during early anæsthesia.

The surgeon who exercises a fair judgment and undertakes a certain number of operations for patients in both these classes will probably have to face a mortality of about 15–20 per cent.

Dangers

The risks encountered in this operation are not necessarily only those of the more ordinary complications, such as shock, emphysema, spreading pneumonia, bronchial fistula, and atelectasis, but are also of a more general character. For massive necrosis and spreading gangrene of the chest wall and pleura, without any attempt at localisation, have been seen on several occasions, and this seems to be more due to lack of resistance on the patient's part than to the virulence of the infection. No form of treatment has been of any avail, and the patient has slowly died several weeks after the operation.

Much can be done to diminish the incidence of the more local complications mentioned above, especially in the direction of diminishing the sputum before the operation. Thus postural drainage, bronchoscopy, and suction, both some time and immediately before the operation, injection of arsenical preparations, and carefully selected methods of anæsthesia, are all of the greatest value.

Results

Our figures for single-stage lobectomy in bronchiectasis are briefly tabulated in the following Table.

Results of Single-stage Lobectomy

—	Class I. Good risks.	Class II. Bad risks.	Total.	Symptom-free.	Improved.*	Died.
Children (under 15)	13 with 2 deaths.	6 with 2 deaths.	19 with 4 deaths.	11	4	4
Adults.	12 with 2 deaths.	15 with 5 deaths.	27 with 7 deaths.	12	8	7
Total ..	25 with 4 deaths.	21 with 7 deaths.	46 with 11 deaths.	23	12	11

* But suffering from further bronchiectasis in other lobes.

It will be seen therefore that in presenting any figures of the results of lobectomy a distinction must be made between the type of risk that is undertaken according to the class of patient. In Class I. of good risks can be included the very early cases, those who are just beginning to lose health, those subject to occasional recurrent attacks of pneumonia, and those in which the sputum is only just becoming offensive. In Class II., the bad risks, fall those with evident toxæmia, with cyanosis and shortness of breath, abundant sputum, and advanced physical signs. Nevertheless, many patients in the latter class are prepared to face almost any risk because of the unpleasantness of their condition both to themselves and other people. It should be remembered that a shrewd idea of whether the operation is likely to prove difficult or not can be obtained by taking a radiograph after an artificial pneumothorax has been performed. This may show the presence or absence of adhesions. It should also be remembered that when there has been a previous empyema the operation is almost always difficult from adhesions.

It is noticeable that children stand the operation well compared with adults in contradistinction to abdominal operations. They are more liable to shock if the operation is unduly prolonged, but in most cases 30–40 mins. is an adequate time allowance. The dead space in the chest left by the removal of the lobe fills in rapidly in young children without the occasional fluctuations in upper lobe expansion that are sometimes seen in adults. The end-results are also relatively more satisfactory, probably because operation is undertaken earlier and the powers of compensation are greater. The failure to cure some adult cases is due to the fact that disease already exists unrecognised at the time of lobectomy beyond the confines of the lobe removed, and most of the 11 cases grouped under the heading of "improved" in the Table are examples of this. The early results were satisfactory, but recurrence of symptoms and X ray investigation has proved the existence of further bronchiectatic dilatations. The present state of these patients varies, some being able to lead a fairly normal existence, whereas others are incapacitated and are either beyond the stage of surgery or have refused further operation. Bronchoscopic aspiration is of considerable assistance in keeping the more unpleasant features of the disease under control.

Prognosis

With regard to the future of the patients who have had a lobectomy performed and are at present free from symptoms, a word of warning should be sounded. When the disease is completely eradicated, in most cases complete and rapid recovery follows, so that the immediate results may be said to be most satisfactory. We have not had much chance yet, however, of following these patients for six, eight, ten, or more years, and it must be remembered that the mere fact that they have had a portion of lung tissue removed causes the remaining parts of the lung to expand, and therefore to become liable to emphysema. This very process may in the future tend to make further bronchiectasis develop. At present we simply do not know.

Alternative Methods

Whereas lobectomy is at present regarded as the best treatment for bronchiectasis there are, however, other procedures which can be employed with advantage to the patient when circumstances forbid deliberate excision. *Collapse therapy*—phrenicectomy and thoracoplasty—has sometimes a palliative effect but its results are rarely of long duration. *Cautery pneumonectomy* across the adherent pleural cavity establishes drainage of the affected bronchi at the same time as areas of diseased lung are destroyed. The treatment is a prolonged one, and there is the risk of a permanent bronchial fistula, though in 5 cases that we have done the fistulæ closed spontaneously. There is also the danger of injury to the pericardium if the bronchi lying close to the mediastinum require opening, while at times severe hæmorrhages have occurred either during or after the operation. *Simple pneumonotomy* has a place in the palliative treatment of severe cases beyond the range of lobectomy. A small opening is made in the chest wall, and if the pleura is adherent the lung is torn across with the finger usually without much hæmorrhage. We have practised this on both sides on two occasions with almost complete reduction of the sputum output. The results were gratifying but cannot be looked on as permanent.

Lobectomy in other Diseases

The value of lobectomy in cases other than bronchiectasis has not been so advantageously shown. Most cases of carcinoma of the lung that have come to thoracotomy have been found to be inoperable owing to metastasis or infiltration of the growth into the mediastinum or chest wall. We have, however, performed lobectomy in 10 such cases, but in some of these it was necessary to resect portions of the chest wall in addition, and of these latter there are none who have survived for more than a few months. Our experience with lobectomy in cases of chronic lung abscess has not been satisfactory. The operation is only attempted when more simple methods have been deemed impracticable, and in many of these the presence of abscesses elsewhere in the body has been proved at autopsy showing that success could only have been temporary.

Points in Technique

The main principles in the technique of single-stage lobectomy are more or less standardised, but there are variations in detail. The chief points that we emphasise are the value of preliminary postural drainage and bronchoscopic treatment in an endeavour to relieve the patient of as much of his retained products as possible. In children a bronchoscope or a suction tube is passed under the anæsthetic before the actual operation is started, and mucus and pus is aspirated from the diseased lobe. One or two special clamps of our own design are used to secure the hilum of the lobe before the actual removal and transfixion sutures are placed proximal to the clamp. In this way the chance of leaving a piece of diseased tissue containing a bronchial stump is avoided, and in children it is difficult to make the lobectomy complete otherwise. A small closed intercostal drainage-tube is inserted as a routine, and after the first 24 or 48 hours suction is applied to encourage expansion of the upper lobe. The tube is removed as soon as blood-stained serum has ceased draining unless the fluid has become turbid, suggesting the onset of an empyema.

DETERMINING THE INFECTIVITY OF BACTERIA FOR THEIR HOST

WITH SPECIAL REFERENCE TO THE PATHOGEN-SELECTIVE CULTURE

By Myer Solis-Cohen, M.D.

The mere presence of a microbe on a mucous membrane, or on the secretion from it, does not indicate infection; nor in chronic or focal infection is the predominance of a germ evidence of any relationship between it and such infection. Of 384 cultures in chronic and focal infections made in glucose brain broth by Boerner and M. Solis-Cohen, in 169 (44 per cent.) the predominating organism was not pathogenic for its host.

It is necessary in an infection to determine which of the bacteria present are of ætiological significance and which may be ignored as not being pathogenic for their host, however pathogenic they may be for other human beings or for animals.

The various serological tests are considered unreliable for determining infectivity. According to Topley and Wilson, the antibody titre of a particular sample of serum, as measured in vitro, is not highly correlated with its power to protect in vivo; the lack of correspondence between the presence of precipitins and agglutinins on the one hand, and the clearing capacity on the other, is obvious; and resistance to a particular bacterium has frequently been associated with entire absence of demonstrable complement-fixing bodies. Intracutaneous testing gives no information concerning specific pathogenicity. Nor is Rosenow's theory of selective affinity regarded as valid. Insufficient studies have been made with cataphoresis to permit of its evaluation.

The fact that an animal is often able to remove from its blood stream bacteria which have gained access to it has suggested to many investigators the possibility that the presence or absence in an animal of susceptibility to, and resistance against, a particular germ may be determined, and possibly measured, by testing the bactericidal power of its blood against that organism. Amoss, however, believes that tests to show the bactericidal power of the blood have little clinical application, because the blood of normal persons contains small amounts of bacteriolysins for many bacteria; but Fleming has demonstrated that these do not include streptococci, pneumococci, and staphylococci. In the presence, moreover, of an active infection organisms are able to multiply in human blood, which normally kills them very easily when such infection is absent, as Fothergill and J. Wright and Hare have observed.

METHODS EMPLOYED FOR DETERMINING AND MEASURING THE BACTERICIDAL POWER OF THE BLOOD

During the past fifty years many different methods have been devised for determining and measuring the bactericidal power of the blood, employing blood-serum, the cellular elements of the blood, defibrinated whole blood, whole blood rendered uncoagulable by the addition of sodium citrate or heparin, fresh whole coagulable blood, and serum-leucocyte mixtures.

Tests devised chiefly for determining or measuring the virulence of certain germs or strains, or the susceptibility or resistance of certain species of animals, include those of E. Bumm (1885), Fodor (1887), Nuttall (1888), Nissen (1889), Buchner (1890), Schottmüller (1903), Weil (1907), Fromme (1908), Gordan (1924), Scaltritti (1925), and Skajaa (1927). Many other tests have been employed for determining in the individual case the presence, or the degree of infectivity for its host, of a microbe present, such as those devised by Greco (1896), A. E. Wright (1900, 1914, 1915, 1923, and 1931), Weaver and Reudiger (1903), Rosenow (1906), Hussy (1916), Heist, S. Solis-Cohen, and M. Solis-Cohen (1918), M. Solis-Cohen and Heist (1921), Ruge (1923), Philipp (1923), Ruge and Philipp (1923), Robertson and Sia (1924), Lucena (1926), Todd (1927), Bull and Tao (1927), H. D. Wright (1927), Courmont and Gardere (1929), Thalhimer and Colwell (1929), Mackie and Finkelstein (1931), and Boerner and Mudd (1935).

COMPARATIVE BACTERICIDAL VALUES OF THE DIFFERENT TYPES OF BLOOD EMPLOYED

Considerable differences of opinion exist as to the best type of blood for bactericidal tests. One reason for this may be the fact that in many instances different investigators have experimented with different species and strains of bacteria and different species of animals, using different methods and employing different types of blood.

Blood-serum has been found lacking in bactericidal power by Andrei, Boys and Gunn, Carminati, Douglass, Heist, S. Solis-Cohen, and M. Solis-Cohen, Kyes, Maitland, Matsunami, Matsunami and Kolmer, Reudiger, Rosenow, Schiaparelli, Smiley, Strouse, Weaver and Reudiger, A. E. Wright, A. E. Wright, Morgan, Colebrook, and Dodgson, and by the great number of immunologists who believe the leucocytes are concerned in the destruction of bacteria by the blood. On the other hand, those employing serum for testing bactericidal power present some evidence that it is suitable for this purpose. In their earlier work A. E. Wright (1915) and A. E. Wright, Fleming, and Colebrook (1918) used blood-serum with apparent success. In Mackie and Finkelstein's experience the bactericidal power of "whole blood" frequently was not superior to serum but in fact was often less active. Mackie, Finkelstein, and Van Rooyen, however, found that "whole" blood or serum-leucocyte mixtures may exert a definite bactericidal effect even when the serum alone is quite inactive in this respect. A. E. Wright, Colebrook, and Storer (1923) and Colebrook and Storer (1923) found that when blood is bactericidal to staphylococci this power exists equally in the plasma and the serum.

Defibrination robs the blood of its bactericidal property, according to the investigations of A. E. Wright, Morgan, Colebrook, and Dodgson (1914), Heist, S. Solis-Cohen, and M. Solis-Cohen (1918 and 1922), M. Solis-Cohen and Heist (1921), and of Smiley (1923). Many investigators nevertheless employ defibrinated blood with evident satisfaction. Walsh and Harmsworth found coagulation of the blood to increase enormously its bactericidal power and believe defibrinated blood to be markedly superior in bactericidal power to citrated blood. The bactericidal action of defibrinated blood was found by Thalhimer and Colwell to be greater, and by H. D. Wright to be less, than that of heparinised blood. The latter noted also that during the process of defibrination the blood is considerably altered and deprived of fibrinogen, while both observed a marked reduction in the number of leucocytes. On the other hand, Boys, Gunn, and Long found little difference between the bactericidal power of heparinised and of defibrinated blood if the defibrination be done carefully and with a constant technique. From the point of view of providing the patient with bactericidal fluid and leucocytes for immunotransfusion, it appeared to Colebrook and Storer to matter little or nothing whether unaltered or defibrinated blood is used.

There is a similar difference of opinion in regard to uncoagulable blood. Colebrook and Storer found that the addition of decalcifying agents to normal blood reduces considerably its power to kill staphylococci and streptococci. Citrated blood gave unsatisfactory results in H. D. Wright's hands, there being a very small margin between the amount of sodium citrate which is anticoagulant and what would be inhibitory to growth. Heparin, however, had no inhibitory effect upon the growth of pneumococci. Sodium citrate was shown by H. D. Wright and McCollum to interfere with antibody reactions in a most powerful manner so that even a small excess might very readily invalidate any results obtained. Walsh and Harmsworth also found that citrate inhibits the growth of staphylococci in the blood.

While Hamburger and Mudd, McCutcheon and Lucke have shown that the presence of the anticoagulants which precipitate calcium is known to interfere with phagocytosis, Boerner and Mudd have not detected any interference with phagocytosis by heparin. A. E. Wright (1915), however, with an improved technique believed he obtained conclusive evidence of bactericidal power with citrated blood. Bull and Tao also found that the power of citrated blood to resist the growth of pneumococci parallels the resistance of the animal to infection with these organisms, and that citrated blood from immunised rabbits is more potent than the corresponding serum-leucocyte mixture.

Those who believe that the property of killing bacteria resides in fresh whole coagulable blood, regard this as the best medium for determining and measuring bactericidal power. Among them are Bull and Bartual, Douglass, Fodor, Heist, S. Solis-Cohen, and M. Solis-Cohen, Matsunami and Kolmer, Smiley, M. Solis-Cohen and Heist, Walsh and Harsmworth, and A. E. Wright, Morgan, Colebrook, and Dodgson. It was discovered by Walsh and Harmsworth that blood develops bactericidal properties during the preliminary stages of clotting which bring about the formation of thrombin. Adami states "in the act of coagulation it is that the bactericidal substances are in the main liberated." Organisms were destroyed by coagulable blood at the end of five minutes in Black, Fowler, and Pierce's experiments. A. E. Wright infers that contact with the unaltered plasma, or possibly with the chemical changes associated with blood coagulation, is an essential factor in the destruction of the microbes.

Topley and Wilson regard the association between the growth-inhibitory action of the whole blood and the clearing capacity as very close, and state that the suggestion is obvious that this bactericidal or growth-inhibitory action of whole blood, or of serum-leucocyte mixtures, is in reality the result of the action of the leucocytes or the sensitised bacterial cells, and probably constitutes a more delicate method of detecting a specific sensitisation which is essentially similar to that involved in opsonisation, a view also held by Robertson and Sia. Rosenow, A. E. Wright, Ash and M. Solis-Cohen, Boerner and Mudd, and others regard phagocytosis as the principal means by which bacteria are cleared from the blood stream.

Serum-leucocyte mixtures have been used for determining bactericidal power by Rosenow (1906), Robertson and Sia (1924), and Boerner and Mudd (1925).

In 1906 Rosenow complained that previous investigators have commonly completely disregarded the influence upon phagocytosis that movement of the mixtures of blood and bacteria might have. To obviate this and to approximate more closely in vitro the conditions present in the circulation, he devised a small shaking machine. Shaking machines are used also in the methods devised by Skajaa, Todd, Bull and Tao, H. D. Wright, Thalhimer and Colwell, and Boerner and Mudd.

METHODS RECENTLY EMPLOYED FOR DETERMINING THE INFECTIVITY OF BACTERIA FOR THEIR HOST

Of the methods devised for determining the infectivity of bacteria for their host, employed during the past nine years, those of Courmont and Gardere and of Mackie and Finkelstein employ blood-serum, those of Robertson and Sia and of Boerner and Mudd employ serum-leucocyte mixtures, that of Lucena—which is employed chiefly in Italy—and that of Irwin and Hughes employ citrated blood, and those of Thalhimer and Colwell and of Boerner and Mudd employ heparinised blood.

The methods that have been most commonly employed are those utilising defibrinated blood.

In Ruge's method the patient's fresh, defibrinated blood is inoculated with her vaginal secretion and examined microscopically on a heated stage. In Philipp's modification the inoculated blood is poured on plates at intervals, the colony counts on different plates being compared. These methods have been used extensively, particularly in Germany, but are not considered reliable. In Todd's method, which a few investigators have employed, the defibrinated blood is inoculated with a pure bacterial culture, incubated in a mixing machine, and explanted into agar at intervals of 1, 2, and 3 hours.

A. E. Wright's slide-cell procedure is the most generally employed of his various methods. Graduated quanta of microbes are implanted into defibrinated blood and the implanted blood is then introduced into slide-cells, constructed by making four compartments on the convex side of a microscopic slide by laying strips of vaselined paper across it. Another slide, with the concave side down, is immediately pressed down upon this slide, the ends and sides being sealed with very hot melted paraffin wax. The slide-cell is then placed in the incubator and the microbes that survive grow out into colonies. Walsh and Harmsworth and Gonce and Kassowitz regard the procedure as unreliable. Fleming finds it unsuitable for *Streptococcus pyogenes* on account of technical difficulties, but regards it as admirable for such organisms as staphylococci, pneumococci, or *Streptococcus viridans*.

THE METHODS OF SOLIS-COHEN AND HEIST

Solis-Cohen and Heist employ fresh whole coagulable blood, whose bactericidal power was first demonstrated by Fodor[1] in 1887, and which A. E. Wright, Morgan, Colebrook, and Dodgson[2] in 1914 pointed out was often bactericidal when the separated serum or plasma showed no such effect. In 1918 Heist, S. Solis-Cohen, and Myer Solis-Cohen[3] demonstrated that the fresh whole coagulable blood of the pigeon, which is resistant to pneumococcus infection, is actively bactericidal for the pneumococcus, while the blood of the susceptible mouse or rabbit shows no such action; that the serum of a pigeon does not differ from that of a mouse or rabbit in its action upon pneumococci; and that the fresh defibrinated blood of both immune and susceptible species is an excellent culture medium for the pneumococcus. They advanced the tentative hypothesis that when small numbers of bacteria are seeded in blood before it has time to coagulate only those bacteria grow and multiply which are pathogenic for the animal from which the blood is taken. They remark that any mechanism of immunity existing in the blood may be brought to bear upon the bacteria when their method is used. These authors also showed that recovery from pneumonia in humans is paralleled by an increase of the bactericidal power of the patient's blood, which is specific to type; that when strains of pneumococci of different degrees of virulence are cultivated in normal rabbit blood, the virulent grow more readily than the avirulent; and that many of the non-pathogenic bacteria usually met with as contaminations failed to grow when seeded in whole coagulable blood. All these observations have been confirmed by others.

Using the Heist–Solis-Cohen technique, Matsunami and Kolmer [4] found a parallel between the varying susceptibility of laboratory animals to meningococcic infection and the bactericidal action of their blood in vitro, and Malone, Avari, and Naidu [5] demonstrated a definite correlation between the bactericidal power of the blood of rats against *Bacillus pestis* and their immunity to plague. Heist, S. Solis-Cohen, and M. Solis-Cohen [6] showed that human susceptibility and resistance to meningococci. *Streptococcus hæmolyticus*, and colon bacilli could be demonstrated and measured in vitro by their test, with which Ash and M. Solis-Cohen [7] exhibited individual differences in human susceptibility to pneumococci.

M. Solis-Cohen and Heist [8] cultured the different organisms, present in various chronic and focal infections, in the fresh whole coagulable blood in vitro of their host and of one or more human controls, as well as in defibrinated blood, and found that the coagulable bloods of different individuals differ in the degree of their bactericidal power against the same organism, but that defibrinated blood lacks bactericidal power. The germs that are able to grow in the whole coagulable blood of their host in vitro they regard as probably of ætiological significance.

They employed two different methods. The first was the one devised by Heist, S. Solis-Cohen, and M. Solis-Cohen [3] in 1918, in which each of a series of graduated dilutions of a pure bacterial culture is allowed to run in and then out of one of a similar series of capillary tubes, leaving a film on its inner wall, as in A. E. Wright's wet-wall method. The tubes are then filled with the fresh whole coagulable blood of the animal or individual tested, sealed, and incubated for 24 hours, the tips then being broken off and a drop from each blown on a slide, fixed, stained, and examined to see whether the organism has grown up or has disappeared. With this technique, which has sometimes been called the Heist-Lacy or Lacy-Heist method, Thalhimer and Colwell could detect gross but not slight differences in the bactericidal activity. Silverthorne and Frazer believe it may afford a positive means of testing an individual's immunity or susceptibility to meningococcus infection, but Bull and Bartual do not regard the method as sensitive enough to classify individuals of the same species with respect to susceptibility to pneumococci infection. The absence of a mixing process is stressed by Robertson and Sia. Smiley [9] found the readings with the method inconsistent and not constant.

THE PATHOGEN-SELECTIVE CULTURE

The second method is called the pathogen-selective culture [8 10 11a 12] and is occasionally referred to as the Cohen-Heist method. The material to be cultured is inoculated into a rich culture medium, such as a deep tube of glucose brain broth, and is also rubbed on the bottom of a sterile test-tube, containing a few drops of bouillon—to prevent the smear from drying. 3–5 c.cm. of the patient's fresh whole coagulable blood, obtained from a vein, is then placed in the inoculated empty tube. After 18–24 hours incubation at 37·5° F., smears and blood-agar plates are made from both tubes, the former being examined immediately and the latter the following day. In subacute, chronic, and focal infections, the organisms that grow in the patient's coagulable blood are regarded as those most pathogenic for him. For such cases, therefore, the method is believed to furnish a means for selecting the ætiologically important organisms from a mixed culture. The organisms usually classified as pathogenic for man—namely, streptococci and staphylococci—were the ones that grew most frequently in the patient's whole coagulable blood in 404 pathogen-selective cultures in chronic and focal infections analysed by Boerner and Solis-Cohen.[12] The organisms most frequently found grew in the patient's coagulable blood in the following percentages: streptococci (hæmolytic) 78·1, *Staphylococcus aureus* 72·5, streptococci (*viridans* group) 65, streptococci (non-hæmolytic) 61·2, *Corynebacterium pseudodiphthericum* 42·8, *Diplococcus pneumoniæ* 40·9, *Staphylococcus albus* 35·1, Gram-negative cocci (unidentified) 21, and Gram-negative bacilli (unidentified) 9·5. No *Neisseria catarrhalis* or *N. siccus* grew up in the patient's blood.

In from 11 [12] to 18 [13] per cent. of pathogen-selective cultures, organisms grow up in the patient's coagulable blood which fail to grow up in the rich culture medium and which therefore would be missed were the infective material not inoculated directly into the patient's coagulable blood. This is a distinct advantage possessed by the pathogen-selective method over the Heist-Lacy method and over all selective methods requiring pure bacterial cultures.

While the pathogen-selective method gives only approximate quantitative results, it can be used for measuring the degree of bactericidal power against a particular germ by placing graduated dilutions of a pure culture into a series of sterile small, serological tubes, into each of which 1 c.cm. of the host's whole coagulable blood is then placed. Such a method is employed by Smiley [9] and Robinson with coagulable blood and by Bull and Tao with citrated blood.

Cronin Lowe [13] is careful to inoculate equal quantities into the rich culture medium and into the patient's blood. He made several control experiments, planting equal quantities of the same specimen into more than one sample of the patient's blood and into both the patient's and a normal person's blood, and having duplicate examinations made in separate laboratories by different workers. In every case the same bacteria were isolated. A negative pathogen-selective culture suggests to him a purely local infection.

Shearman [14] emphasises that the amount of inoculum used must be very small, and he increased the accuracy of the method by making a second culture in the patient's coagulable blood with one-third of the amount of inoculum placed in the other blood-tube. His control tests, in which blood from apparently healthy people was inoculated in parallel series with that of the patients, failed to show one instance in which the organism, ultimately recovered through the patient's own blood, was able to resist the bactericidal effect of healthy blood.

Warren Crowe[15] says the method is able to discover some microbe hitherto unsuspected in the case. It has afforded valuable evidence in his studies on arthritis, inasmuch as he has found the bactericidal power of the blood very low to *Micrococcus deformans* in a large number of patients with chronic arthritis—quite independent of his clinical experience. Smiley[9] found the method employing test-tubes to give constant and conclusive results. The method has also been employed with success by Robinson, Graham, Barlow, Thomson and Hill, Vischer, Walls and others.

Parks[16] believes that bacteria that are destroyed by an individual's coagulable blood probably are incapable of producing a bacteræmia, but still may produce a localised infection, an opinion shared by Kolmer. Kolmer and Boerner[11b] think the test may be helpful in selecting bacteria for vaccines in mixed infections on the basis that only those capable of growing in the whole coagulable blood of the patient are apt to be virulent.

Fleming and Petrie[17] think there is not sufficient evidence to warrant the assumption that the use of blood from the patient ensures a better selection than does normal human blood, and believe it is not justifiable to assert that the particular strain or strains of bacteria which can flourish in the patient's blood are the actual infecting microbes.

The theoretical foundations of the method are considered insecure by Short, Dienes, and Bauer,[18] who state that in the majority of chronic infections a marked resistance develops against the invading bacteria, and that we should expect an increase, rather than a decrease, of the bactericidal effect of the blood. In the tests reported by M. Solis-Cohen,[10] M. Solis-Cohen and Heist,[8] Boerner and M. Solis-Cohen,[12] Cronin Lowe,[13 19] Thomson and Hill,[20] Shearman,[14] and others, however, the bactericidal power of the patient's blood against the infecting organism was actually lowered or absent. In chronic infections, according to A. E. Wright,[21] the defensive forces of the organisms ineffectually combat the invading microbe and, according to Kolmer,[22] the body cells become accustomed, as it were, to the toxic products of parasites, and produce only sufficient antibodies to effect their immediate neutralisation. If Short, Dienes, and Bauer refer to the presence of agglutinins, precipitins, and complement-fixing bodies, their lack of correspondence with the clearing capacity has already been mentioned. Moreover, the presence in the blood of the protective substances, even in large amounts, as Dudgeon[23] remarks, is not necessarily an indication of the patient's resistance to a bacterial infection.

Investigations by leading immunologists, therefore, support the view that the virulence of bacteria for an individual and the resistance or susceptibility of an individual to a germ depend on the ability of such individual to remove that microbe from his circulation—an ability reflected in the bactericidal power of his fresh whole coagulable blood.

Of the various methods employed for determining the infectivity of bacteria for their host it thus would appear that the pathogen-selective method is not only the simplest but also the most reliable and the most accurate of those available for clinical use.

SUMMARY

1. The mere presence of a microbe on a mucous membrane or on the secretion from it does not indicate infection, nor in chronic and focal infections is the predominance of a germ evidence of any relationship between it and such infection.

2. Serologic and intracutaneous tests and Rosenow's selective affinity procedure are not regarded as valid for determining the infecting organism.

3. During the past fifty years many different methods have been devised for determining and measuring the bactericidal power of the blood, employing blood-serum, the cellular elements of the blood, defibrinated whole blood, whole blood rendered uncoagulable by the addition of sodium citrate or heparin, fresh whole coagulable blood, and serum-leucocyte mixtures.

4. Some of these tests have been utilised for determining in the individual case the infectivity of a germ for its host.

5. In chronic and focal infections the pathogen-selective culture utilises the bactericidal power of the patient's fresh whole coagulable blood for selecting from a mixed culture the ætiologically important organisms.

6. Comparison of the various methods suggests that the pathogen-selective method is not only the simplest but also the most reliable and the most accurate of those available for clinical use.

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CLINICAL ASPECTS OF AN OUTBREAK OF TYPHOID FEVER

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The recent outbreak (August and September) in the neighbouring boroughs of Poole in Dorset, Bournemouth and Christchurch in Hampshire was, soon after it arose, traced to a milk-borne infection by *Bacillus typhosus*, the source being a particular dairy which had distributed milk that had become infective during the last week of July, possibly earlier, continuing so until rendered safe on and after August 22nd by being pasteurised. It was believed at that time that the outbreak would last some four or five weeks, then disappear suddenly, only a few secondary cases being likely to occur thereafter. Subsequent events proved these early anticipations to be correct. The expected three-weeks' interval between the adoption of pasteurisation and the cessation of notifications of fresh cases took place.

By Sept. 23rd the outbreak was at a standstill, Bournemouth (according to the figures kindly given me by Dr. H. Gordon Smith, M.O.H.) having had 293 notified cases with 22 deaths—during the latter days there being mild cases only. Confirmation of the diagnosis was, however, not possible in a few of the notified cases. Poole had had a total of 202 patients, with 16 deaths, having already discharged as cured 38 patients. Up to Sept. 15th Christchurch had 28 notifications with no further new cases following that date; here there were 2 deaths, increased to 3 on Sept. 21st. Each case was discharged from hospital only after three successive loose stools, taken several days apart, and one specimen of urine had proved negative on examination for *B. typhosus*, these specimens not being taken before the temperature had been subnormal for at least a week.

The disease in this outbreak, as in other outbreaks happening elsewhere, has "bred true," so that its progress was, in most, quite orderly, symptoms and signs arising to time. Knowing the day of disease, it became possible to anticipate what was going to happen, so that one felt armed thereby against likely complications and against the disease itself.

The outbreak being milk-borne, children naturally suffered most and severely at the start, adults later and, perhaps, less so. As expected, the disease was found to be commonest between ages of 10–35; after 35 the incidence decreasing up to 40, being comparatively rare after that age, though a number of patients aged 60–75 had been notified. Early in the outbreak a number of young infants were attacked, faring badly as infants generally do. In these, the principal signs did not differ from those in adults except that the fever was more irregular, the pulse faster in proportion to the temperature, and nervous system manifestations were more prominent.

CLINICAL TYPES

The disease at the start had all the appearance of a septicæmia with localisation in the intestine, although in children this localisation was not so apparent. Several cases appeared to commence as a pneumonia with atypical lung physical signs. On a tour of the wards, the temperature charts examined showed the ordinary three-weeks type of the disease, and latterly as often, or oftener, evidence of pyrexia prolonged into the 3rd and 4th and 5th weeks. They showed high peaks as evidence of incidence such as attempts to start extra feeding, temporary diarrhœa, insomnia, and subcutaneous abscess; and occasionally steep falls in collapse, intestinal hæmorrhage, perforation. This latter, unusual in young children, happened more often than is usual, probably owing to the virgin soil or to the virulence of the strain of bacillus, or both.

POINTS IN DIAGNOSIS

Difficulties arose in the diagnosis of the first few cases of the outbreak. The earliest diagnostic sign was, as is usual, the steady "staircase" rise of temperature to 104° F. or more by the evening of the fourth day. In our climate such a temperature can surely be caused by few other diseases in the months of August, September, and October, when the seasonal prevalence of typhoid is greatest. At the same time, the pulse-rate kept comparatively slow, in adults seldom exceeding 80–90 even at the height of the disease. Again, a sudden onset, although fairly frequent in children (11·9 per cent.), was rare in adults in whom it was usually insidious. Amongst the Bournemouth cases, several with sudden onset simulated appendicitis; here pain at McBurney's point and a leucocyte count could be used to differentiate the one disease from the other, if the possibility of appendicitis occurring in the course of typhoid fever is kept in mind. The next useful sign was epistaxis, generally on the 2nd and 3rd day. By the 4th or 5th day the diazo reaction became positive, though not in all; this test, to be of use, must be very carefully performed, otherwise it is useless. Towards the end of the first week, dizziness on movement was complained of by some. Even such a subjective symptom, with intense headache at the start along with an increasing lethargy, should arouse the suspicion of typhoid, particularly in the presence of a steadily rising temperature. Deafness during the second week was a diagnostic feature. In this outbreak few positive blood cultures were obtained.

Widal test.—After the 10th day of illness the Widal test was, in a number, negative; but the absence of a positive Widal test, in the presence of good clinical evidence, should not influence a medical man in his diagnosis of typhoid fever. By some, complement-fixation has been found to be more reliable than the Widal test because of the latter being found to be repeatedly negative in patients with undoubted typhoid; as also because prophylactic inoculation produces agglutinins which, persisting as they do for long periods, negative the value of the Widal test. It is really a question whether the bacteriologist has not placed too high a value upon his share in the diagnosis.

Blood pressures.—Dr. James Ronald Kerr at the Victoria branch of the Royal Victoria and West Hants Hospital, taking observations on 38 cases of typhoid fever, found the systolic blood pressure in the adult much reduced by the 7th day, the average being 95–120 mm. Hg, though the diastolic pressure remained 60–80—i.e., normal—using Halls Dally's table of comparison. Up to 35 years the blood pressures he found reduced; though at ages 40–50 they were not so affected. Over 50 the blood-pressure reading was 110/75 (average of six cases).

The Marris test.—Dr. Kerr, doing Marris's atropine sulphate test by giving gr. 1/33 hypodermically and comparing the pulse-rate before and after, found equivocal results. Atropine increases the pulse-rate by 20–40 normally, but hardly at all in the enteric group. An increase of 10 or less, however, may suggest one of the typhoids. The best time to do this test is said to be during the second week. The reaction appears quickly in the inoculated, persisting for 10 weeks.

Care had to be exercised in determining the exact day of disease. It sometimes happened that the patient was first seen during a relapse; or, in a previously ambulatory case, during the third week when the temperature was remittent with a wide diurnal variation. The spleen enlarging to time, the distinctive eruption, the positive Widal, and the leucopenia, always indicate typhoid of one kind or another.

COMPLICATIONS

Among the more important complications met with were abdominal pain occurring early in the disease, localised to one sector of the abdomen in some, in others diffused throughout the abdomen; ulcerative angina with appearances easily distinguishable from those seen in diphtheria; bronchopneumonia; and collapse. This collapse was due not to hæmorrhage but to toxæmic poisoning of the bulbar centres with neurocirculatory failure, and to depletion of the circulation of necessary fluid. Collapse was not found to occur till after the beginning of the third week. The signs were as follows: (1) sudden steep fall of temperature; (2) sudden fall in blood pressures; (3) pinched, anxious expression of face; (4) cyanosis of skin; (5) weak, running pulse; (6) rapid breathing, suggestive of air-hunger; (7) rigor. Great care had to be exercised in differentiating collapse from perforation, particularly in those in status typhosus, where the intensity of pain was much weakened by the extreme toxæmia and exhaustion of the patient. This had to be done by estimating the comparative difference in intensity of the pain. In collapse the pain is much less severe; there is an absence of any restlessness; abdominal breathing persists; and the muscular resistance in the right lower quadrant is less decided than in perforation. The duration of collapse is 3–4 hours, but may continue for much longer. The prognosis is good, but recurrences are frequent. In perforation the whole attitude of the patient is changed, the appearance of the abdomen is completely altered for the worse, the pain is more intense, the liver dullness disappears, the pulse quickly speeds up, and the expression of face becomes anxious—all even in the space of minutes. In collapse the abdomen has been opened but no perforation found, so that a very careful investigation must be made in each case to remove any doubt. If this remains then operation seems justified, although this may gravely prejudice a patient's recovery, precarious as it usually is, whether the complication be a collapse or a perforation.

Other complications occurring were cystitis, encephalitis of temporary kind, endocarditis, furunculosis, intestinal hæmorrhage, subcutaneous abscess, and venous thrombosis. Although perforation is uncommon in children, several did perforate. The complication seldom occurred before the end of the third week. Pleurisy occurred rarely. A few suffered relapse; although relatively common in typhoid fever (10 per cent.), this happened but seldom during the outbreak.

The status typhosus appeared in the severest cases. This added greatly to the gravity of a case and meant extreme toxæmia with exhaustion. Although most patients had double incontinence, several had retention of urine, at first with overflow, when the lethargy overtook them. During the height of the outbreak the typhoid wards were strangely quiet with inert, motionless, dreamy patients, who needed close watching and everything done for them, so that the nurses had the greatest difficulty in administering fluids, especially a sufficiency of water. It needed all the attention of the nurse to force a sufficiency of fluid upon the patient, who was able to take and swallow only a small mouthful at any one time.

PROGNOSIS

A patient with typhoid fever usually tends to recover, for it is a natural proclivity in one with the disease. What adds to its seriousness, however, is the wide range of complications; it is this fact that contributes most to the death-rate. Hæmorrhage, perforation, and profound toxæmia constitute the most grave complications; of these, toxæmia accounts for most deaths, through neurocirculatory or vasomotor paralysis; this held true in the Bournemouth outbreak. The prognosis in typhoid collapse is good; so also is it in relapse. As a rule, a late positive Widal is of grave import.

TREATMENT

In typhoid fever the patient has to fight his own battle, so that in the management of the disease he has to be placed in as favourable a position as it is possible, so as to enable him to do so with the best chance of recovery. Much can be done to obviate complications; in fact, much of the treatment aims at this. The patient must be treated rather than the disease, and nothing is so important as (1) to maintain nutrition, and (2) to support the fluid balance in the tissues.

Diet.—A low diet consisting of milk alone, although formerly closely adhered to—as it still is by some—appears to have been decided chiefly by fear of the consequences of allowing anything more upon an ulcerating intestine, rather than by the needs of the patient, and seems at this time of day a poor support for any patient suffering from typhoid fever. It meant too low a diet. A high calorie diet, one of 2500–3000 C., has been found to produce better results: there have been fewer complications, with a speedier and better recovery, and even a lower mortality-rate. In the early stages milk should, of course, form the basis upon which the diet is built up. For an adult, 3 pints a day should be given in 5 oz. feeds every two hours with half volume of water added, and a sufficiency of salt to encourage thirst and so the retention of fluid in the tissues. Probably the feedings should be given during the day only. Orange and lemon juice in well-made barley water, with syr. glucos. liq., B.P., or Glucose-D added, can be given freely, and water alone, these being fed to the patient as often as possible. It is strange how the typhoid patient seldom asks for a drink, so that it is the nurse's duty to see that the necessary quantity is administered periodically, even by being forced upon the patient, and consumed within a definite period of time. This is so particularly with feedings of milk; ten minutes should be allowed the patient to consume the full quantity measured for him. Tea or coffee or maltine can be added if milk itself is disliked, as it sometimes is. A pint of beef tea or chicken soup, well salted, can be administered in three or four portions—one given at the usual lunch time, one at bedtime, and one portion in the early morning when the patient's vitality is lowest. The very real need for a diet which includes the accessory food factors must be kept in mind. Until the temperature had fallen, any increase in diet was given with the greatest caution, and made more boldly only after the pyrexia had ceased; but each case was, so far as feeding was concerned, treated on its own merits.

The *ward temperature* was kept at or above 65° F.; one pillow was allowed; and the patient was on no account permitted to sit up in bed.

Water-balance.—Next to diet, the maintenance of the fluid balance seems to me to be important. The greatest difficulty is often encountered in getting the patient to take the necessary quantity of fluid, particularly when it is most needed, while the temperature remains up. Where this becomes impossible, then the best means of giving it is by proctoclysis. Such can usually be done even where there is incontinence; the decubitus and quietness of the patient both help. In fact, rectal saline given by the drip method (one drop per second to 100 drops per minute) may be given, using a Souttar or a Lennox Wainwright saline apparatus. A pint Thermos flask will last two hours. Either boiled water with added glucose, or normal saline with glucose, at 100° F., can be given in this way, without undue rise of pressure exciting hæmorrhage from the bowel. If rectal saline administration fails, the same may be given by needle deeply subcutaneously into the fronts of both thighs using a Y-tube and suitable needles; or 250 c.cm. of a 25 per cent. solution of glucose in filtered, sterile, double-distilled water may be given intravenously through a small needle, taking a full hour to administer; intravenous glucose in water by the continuous-drop method is useful. Any or all of these methods can be used to supplement fluid given by mouth, and will go a long way towards combating or preventing dehydration, auto-intoxication, auto-toxæmia, and even nitrogen starvation. Collapse is usually due to dehydration, and can be prevented or met by proctoclysis or saline transfusions.

Sponging night and morning or every four hours is helpful and indeed necessary, and also at times when the temperature is 103° F. or more. This should be done quickly and, of course, lightly. For temperatures about 105° F. an ice-bag may be applied to the head if the patient is kept otherwise warm.

Care of the mouth and tongue.—From the very beginning the mouth and tongue should be cleansed by swabbing at least twice daily. Particularly is this necessary during the third and fourth weeks when mouth, tongue, and lips become parched, dry, and covered by sordes; and the nostrils becoming blocked, the patient can only breathe through the mouth. The best cleanser is Wyllie's ointment for the purpose:

℞	Acidi borici	grs. 60
	Ol. menth. pip.	♏ v.
	Vaselini alb.	ad 1 oz.

Applied and used by means of a soft, cheap badger tooth-brush, nothing is better; ointment is certainly more easily used, and more effective than glycerin or aqueous solutions. Kolynos tooth-paste does well for cleansing teeth and gums. Hydrogen peroxide (10 vol.) should be used to spray the mouth before using the ointment. If unattended, the tongue and mouth become dirty, sore, and horribly septic, so that feeding and swallowing become nearly impossible. This is particularly so in children who begin to dread the painful act of swallowing.

Drugs.—Urotropine is in no way specific in typhoid, nor is any drug. Urotropine is apt to cause hæmaturia so that its effect should be carefully watched; it is best given combined with large doses of an alkali such as potassium citrate. Cinnamon oil, quinine, and many others may be given, but it is questionable whether any is of real use. The coal-tar derivatives given in attempts to control the pyrexia are dangerous; for that purpose sponging is safer and in every way better. In hæmorrhage, morphine must be given circumspectly, if at all, because of the risk of masking the signs of perforation. Better in hæmorrhage is Dover's powder in repeated doses, and turpentine ♏ 10–20 in almond emulsion by mouth. In hæmorrhage calcium, being doubtful in its results, is best avoided altogether because of the risk of thrombosis; besides, milk probably allows sufficient calcium to be given; horse-serum is best of all, or Hæmoplastin 2 c.cm., intramuscularly, or Coagulen (Ciba). Immediately the temperature falls, halibut oil should be allowed and iron with malt and ergosterol (ext. malti c. vitaminis B.P.C. with 1 drachm or so of syr. ferri phos. Co., B.P., added). In collapse from neurocirculatory failure give, intramuscularly, the injectio adrenalini co., repeating every half hour, or at longer intervals if need be; nothing is more effective.

Serum.—An efficient serum is theoretically the ideal specific therapy, though the results of its use are not convincing. The Lister Institute serum we have found useful, as to 25 c.cm. given intramuscularly, repeating twice if found helpful at 24-hour intervals. Other methods of treatment employed were: convalescent serum injected intramuscularly in doses of 5–20 c.cm. repeated (twice or thrice) every five days; and auto-hæmotherapy, 5–10 c.cm. of blood so repeated.

Sero-vaccine.—Perhaps the best results should be obtained by the use of combined serum and vaccine treatment. As a rule a vaccine appeared to act best if given before the 10th day; in smaller dosage for severe, larger for mild cases, given in increasing doses every 3 or 4 days, starting with 25 or 30 millions of a sero—or sensitised—vaccine, increasing the amount by 100 millions for each following dose. The results of vaccine therapy in the present outbreak have been equivocal.

Immuno-blood transfusion is of the greatest possible use given in small doses intravenously and repeated. The immuno-transfusion of blood is specially indicated in severe intestinal hæmorrhage, in relapsing forms of typhoid in the very toxæmic patient, as well as in protracted forms of the disease.

THE SURGERY OF HÆMATEMESIS IN CHRONIC PEPTIC ULCER

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THE advisability of surgical intervention in cases of severe hæmorrhage from chronic peptic ulcer has always been keenly debated. Physicians are in the main opposed to operation, for they believe that better results can be obtained from medical treatment alone. It may be that there has been a tendency to exaggerate the value of medical measures, for occasionally one hears it said by practitioners of experience that they rarely if ever see deaths from hæmatemesis due to peptic ulcer when medical treatment has been adopted. Such experience is fortunate, not to say exceptional, for there is no gainsaying the fact that patients do die from this complication. It would seem indeed from recent estimates that the mortality is anything but low, even in circumstances where the best possible medical care is available.

Aitken,[1] in a comparative review of statistics from various London hospitals, found fatality-rates that ranged from 2·5 per cent. to 25 per cent., and came to the conclusion that about 10 per cent. of patients who have moderately severe hæmorrhage die from it when treated medically. Lloyd Davies and Nevin,[2] reviewing cases of severe hæmorrhage from peptic ulcer in which medical treatment alone was adopted, found that there was a mortality of 40 per cent., and that if a second hæmorrhage occurred this figure rose to between 70 and 80 per cent. The fatality-rate for all severe cases, according to this estimate, is therefore between 40 per cent. and 75 per cent.—an appalling figure and one obviously only applicable to very severe cases of obvious arterial hæmorrhage. Yet, in spite of this serious mortality, there has been unwillingness to act on the axiom that a dangerous bleeding point should be cut down upon and dealt with (directly or indirectly), because it has been held that operation carries even greater dangers. Nearly all cases of hæmatemesis are first admitted to a medical ward, and if there can be said to be any rule in their treatment it is that the surgeon is not called in until a second hæmorrhage occurs. In these circumstances it is no wonder that surgery is not attended by any striking success.

The apparent reluctance of surgeons to champion their cause with statistics is often taken as a confession of failure; and indeed there are few recorded series in which hæmorrhage has been treated surgically. A remarkable exception, however, is provided by Finsterer,[3] who has shown beyond doubt, as far as his clinic is concerned, that the safest method is immediate operation. Gordon-Taylor's [4] figures are even more convincing, because in his practice he has passed through a period of advising expectant treatment before being forced to return to the practice of immediate operation.

WHAT OPERATION SHOULD BE DONE?

We do not wish in this paper to enter into the question of medical as opposed to surgical treatment, but rather to discuss what type of operation, if surgical treatment be adopted, is most likely to ensure recovery. The operation is an emergency one, and the surgeon's aim should be to make it as short as efficiency allows. Exsanguinated patients are unfit to stand the strain of a long operation, and consequently we think that partial gastrectomy should not be adopted as a routine. Few surgeons have the experience and practice of Prof. Finsterer in duodenectomy or partial gastrectomy, and few can hope to emulate his success in them. It is to be noted, too, that Gordon-Taylor, who has had much experience of these conditions, does not insist on these greater operations as routine treatment, and varies his operation according to the conditions found. We feel that if such major operations were generally adopted the results would on the whole be far worse than those of medical measures alone. The treatment of hæmorrhage itself is an urgent matter, and the ulcer that causes it should be left for later treatment if necessary. We are inclined to go further and say that we do not even consider gastrojejunostomy essential, except occasionally as a supplementary operation, for it has no direct effect upon the bleeding point, and it is doubtful if it exercises any indirect action. This is exemplified forcibly in some of our own cases.

CASE 1.—A man, aged 58, was admitted to hospital with a history of severe hæmatemesis before admission. He had a second one soon after entering hospital and surgical treatment was decided upon. At operation the stomach appeared normal, nor was an ulcer visible on the anterior surface of the duodenum. Following accepted teaching, a gastrojejunostomy was performed but two days later the patient had another big hæmorrhage and died within an hour. Post mortem the source of the bleeding was found to be a large open-mouthed artery in the floor of an ulcer on the posterior surface of the duodenum.

CASE 2.—A man, aged 52, was admitted with a history of hæmatemesis and signs of severe continuous bleeding. At operation no gastric ulcer could be found, and in view of the experience of the previous case it was thought that the hæmorrhage was probably coming from an ulcer on the posterior surface of the duodenum, though none could be distinctly palpated. Gastrojejunostomy was done and in addition infolding sutures occluding the pylorus and embedding the anterior surface of the duodenum were inserted. The hæmorrhage, however, persisted and the patient died. Post-mortem examination confirmed the presence of a bleeding ulcer on the posterior surface of the duodenum.

From these cases we concluded that gastrojejunostomy per se does not stop hæmorrhage. The next method adopted was the ligature of arteries leading to the ulcer, and this was done in two cases with success.

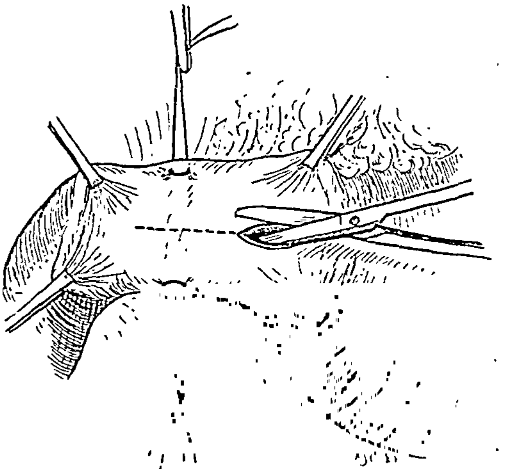

FIG. 1.—The two sutures steadying the pyloric muscle, the placing of the Alliss forceps, and the beginning of the exploratory incision. This can if necessary be made to divide and include an anterior ulcer.

CASE 3.[5]—The patient had undergone an operation previously for perforated duodenal ulcer at which closure of the perforation and gastrojejunostomy were carried out. He was admitted with severe hæmorrhage the cause of which was presumed to be gastrojejunal ulcer. His pulse-rate rose steadily and operation was advised. After a blood transfusion the abdomen was opened and a small gastrojejunostomy found near the pylorus. This was examined and proved perfectly normal, but an ulcer was palpable on the posterior surface of the duodenum. The gastroduodenal artery was tied and the pylorus occluded.

CASE 4.—The patient was a woman who had undergone a Balfour type of operation nine days previously for gastric ulcer. She vomited copious amounts of blood and her pulse-rate rose steadily. The hæmorrhage was thought to be coming from the cauterised ulcer, and the abdomen was therefore opened after a blood transfusion and the coronary artery tied above the site of the ulcer. She recovered and a year later had her gall-bladder removed for gall-stones, during which operation her stomach and the gastrojejunostomy were examined and found to be apparently normal.

It is to be noted that although gastrojejunostomy had already been performed in these two cases, it had no arresting effect on a hæmorrhage occurring later.

In discussing with one of us the question of ligature of the gastroduodenal artery for hæmorrhage Prof. Finsterer gave it as his opinion that such ligature might in a small proportion of cases lead to a necrosis around the head of the pancreas owing to inadequate anastomosis. Furthermore, the procedure did not seem to us to be completely satisfactory inasmuch as it was not certain at the time of operation that the desired result had been obtained. In spite therefore of the successful cessation of the hæmorrhage in the above cases we were led to adopt the type of operation recommended by the surgeons of the Mayo Clinic for interval operations on duodenal ulcer—namely, *exploration of the duodenum* and a direct treatment of the bleeding point. We have done this in three cases, with success in each, and though the number is not large enough for definite conclusions it is evident that the method not only provides means of stopping the hæmorrhage but (as shown by the figures of Judd and Hazeltine[6]) will often afford lasting cure of the ulcer itself. Our patients were men aged 47, 51, and 61.

INDICATIONS FOR OPERATION

1. The figures of the Mayo Clinic indicate that 90 per cent. of cases of hæmatemesis give a history of ulceration averaging five years' duration. If previous investigations point to an ulcer in the first part of the duodenum one will be more strongly biased towards operation, because here—particularly posteriorly—is the most vascular part of the ulcer-bearing area, and ulcers are most likely to bleed severely.

2. When a patient is admitted after a severe hæmorrhage his blood-group should be determined and his hæmoglobin estimated. If the latter is low (i.e., below 40 per cent.) an attempt must be made to raise it by blood transfusion; for operations, particularly those on the stomach, are attended by a high mortality where the hæmoglobin percentage is low. It must be emphasised, however, that a high percentage is not a reliable indication of the patient's condition in urgent cases, as the true figure may not be reached for 48 hours.

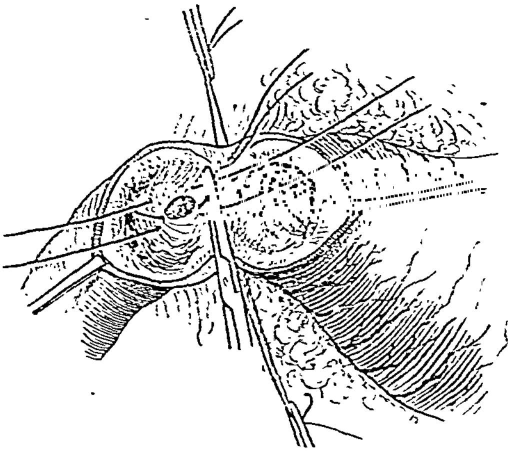

FIG. 2.—The introduction of the underpinning sutures beneath the ulcer. The needle should be more fully curved than is shown in the diagram.

A transfusion should therefore be given after every severe hæmorrhage. It is administered as the continuous blood-drip transfusion which is one of the most important advances in the treatment, whether medical or surgical, of bleeding ulcer. The form of apparatus used is that described by Marriott and Kekwick[7] which though apparently complex is simple to assemble. If despite the transfusion the pulse-rate steadily increases, operation should be advised whatever the hæmoglobin percentage may be. A rising pulse-rate we consider to be the most important indication for surgical interference.

3. In general it can be laid down that under the age of 40 operation is less likely to be urgently required, for in a young man the arteries are less often affected by arterio-sclerotic changes and are more contractile. The ulcerated area is, moreover, likely to be less hard and fibrous. The truth of this was shown by Allen and Benedict[8] who found that the average age of fatal cases was 56·3, whereas the average age of those that recovered was 41·8.

OPERATION

A midline abdominal incision (in preference to a paramedian incision) is used in order to save time. This can be supplemented if necessary by a transverse incision through either rectus muscle. A short examination of the stomach will readily demonstrate the presence or absence of a chronic ulcer. An ulcer on the anterior surface of the duodenum will be obvious, but some posterior duodenal ulcers are not easily detected without opening the gut, and this is a situation which for reasons already stated is a common source of hæmorrhage, especially severe hæmorrhage requiring immediate surgical treatment. If therefore no obvious ulcer is found, or if a duodenal ulcer is discovered, the following procedure is adopted.

A long-bladed retractor is used to draw the liver upwards and give adequate exposure of the duodenum. Peritoneal forceps are placed on the superior and inferior borders of the latter, about 3 cm. below the pylorus, and similar forceps an equal distance above it as indicated in Fig. 1. The surrounding areas and Rutherford Morison's pouch being packed off, an incision is made into the stomach an inch above the pylorus, a sucker is introduced, and the blood and gastric contents are evacuated. The importance of this is illustrated by one of our cases in which the gastroduodenal artery was tied and hæmorrhage was successfully controlled, but the patient died 36 hours later from acute pulmonitis. Post mortem this was shown to be due to regurgitation and inhalation of the stomach contents. Two sutures are then introduced through the superior and inferior limits of the pyloric muscle and the incision prolonged through it and into the duodenum. This incision should be as short as is consistent with adequate exposure of the ulcer, and can be made to include an ulcer on the anterior wall if one be present. A long incision will make the method of closure described hereafter a difficult operation and may necessitate mobilisation of the first part of the duodenum.

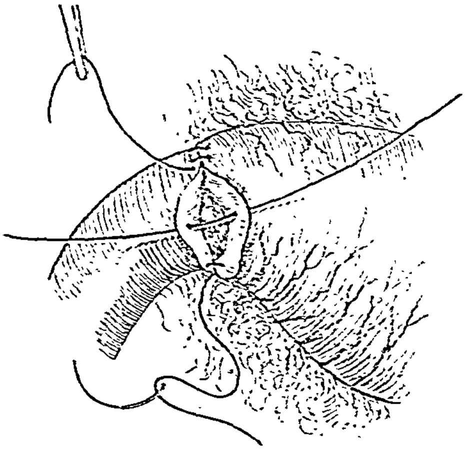

FIG. 3.—The incision being closed transversely. The centre suture approximates the limits of the incision. This is tied before beginning the continuous suture.

The bleeding point and the ulcer on the posterior wall are treated by infolding the area with a series of underpinning sutures introduced parallel to the long axis of the duodenum by means of a stout medium curved needle with No. 0 or No. 1 catgut and gently drawn tight (Fig. 2). The ordinary eyeless needle with catgut attached is unsatisfactory because it tends to bend and to slip in the needle-holder. In closing the opening thus made a pyloroplasty is performed by sewing up transversely, one stitch being first inserted to approximate the duodenal and gastric limits of the incision (Fig. 3). If any difficulty is encountered in bringing together the lips of the opening in this manner, the duodenum should be mobilised. If the anterior wall of the duodenum is ulcerated and fibrosed to such an extent that pyloroplasty cannot be done, the incision should be closed, embedding sutures inserted, and gastrojejunostomy performed. This is the only circumstance in which we consider a short circuit necessary. It need hardly be emphasised that the tissues of the duodenum are more delicate than those of the stomach and care must be taken when approximating the surfaces to avoid the sutures cutting out on the duodenal side.

By this operation not only is the bleeding stopped, but a recognised method of curing the ulcer itself is employed which obviates the necessity of a duodenectomy, a tedious and difficult operation and one certainly inadvisable in a case where the patient is in a critical state.

By underpinning the ulcer and thus including in the needle-bite the underlying tissues we have not in any of the three cases mentioned found any difficulty in getting sutures to hold. It is quite probable, however, that in cases such as those described by Hurst,[9] difficulty may be encountered, for undoubtedly there must be some in which the ulceration is so extensive that no medical or surgical treatment will save the patient. Such a condition, of course, cannot be ascertained without operation. One of us has seen a case where another surgeon was able to catch the bleeding point but the sutures which were intended to embed the ulcer were not underpinning sutures and immediately cut through. If in such cases deep sutures occluding the ulcer cannot be introduced successfully, because of the extent of the ulcerative process, the gastroduodenal artery should be tied. Balfour and Eusterman [10] speak highly of the value of the cautery in such cases, but we have no experience of it.

GASTRIC ULCER

We have treated only two cases of bleeding gastric ulcer in addition to the one already mentioned. In the first of these there was an ulcer on the posterior surface of the lesser curve and although it was adherent posteriorly, no difficulty was found in ligaturing arteries above and below the site of ulceration. In the other case there was a penetrating ulcer of the posterior surface; the anterior wall of the stomach was opened, the gastric contents evacuated, and a method of underpinning similar to that described above for posterior duodenal ulcers was employed. A small piece of rectus muscle was placed in the ulcer crater before the sutures were drawn tight. Both these patients recovered.

CONCLUSIONS

In this paper we have given our conclusions from experience of the cases mentioned. These are not numerous enough to enable us to dogmatise on the subject, but they show that the surgical treatment of hæmorrhage can successfully follow conservative lines. The proportion of cases of hæmatemesis seen by the surgeon is small and the cases mentioned are all that we have operated on. Of the 10 patients that underwent operation 3 died. In the first 2 cases death was undoubtedly due to inadequate operation—i.e., gastrojejunostomy with or without occlusion of the pylorus and first stage of the duodenum. In the third case death was due to failure to evacuate the stomach contents. In the other cases, we believe the successful result was attributable to conservative methods of treatment along the lines indicated.

At the same time it must be added that not all the cases seen with surgical treatment in view were subjected to operation. Some had what was supposed to have been a severe hæmorrhage, but when they were seen the pulse-rate did not indicate even the necessity of a blood transfusion; others were given a blood transfusion and no further interference was required. Two patients in the latter category have successfully undergone partial gastrectomy within the past six months. A few, however, it must be admitted, were seen in a moribund condition when surgery was out of the question. It is because of cases like these that we feel there should be earlier coöperation between surgeon and physician.

Finally we wish to stress the following observations. (1) The institution of the blood-drip transfusion is a striking advance in the treatment of severe hæmatemesis. (2) Except by specialists in that particular form of surgery, gastrectomy (other than perhaps a local excision of the ulcer in certain cases) and duodenectomy should not be attempted as immediate treatment for bleeding from chronic peptic ulcer. (3) We believe that gastrojejunostomy is of little material assistance in these cases, except when the duodenum is fibrosed and has to be occluded. When operation is decided upon it should follow the lines we have indicated.

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TREATMENT OF GLOMERULONEPHRITIS BY ANTIGEN

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FOLLOWING the work of Volhard and Fahr on Bright's disease,[1] modern opinion has come to regard acute glomerulonephritis as the result of a local and general vascular reaction of an allergic nature. The general œdema and rise of blood pressure are referred to a widespread capillaritis with some vascular spasm, while the renal effects result from similar lesions in the glomeruli, which are particularly susceptible on account of their special vascular arrangements.

Acute glomerulonephritis usually arises as a late complication of an infection in the post-febrile stage (consecutive nephritis). Its frequent association with scarlet fever and tonsillitis has led some authors to assume that the causative antecedent infection is always streptococcal. In the late war, however, there was evidence that trench nephritis was dependent on trench fever (*Rickettsia quintana* infection),[2 3] while in a previous communication I described cases commonly seen in Egypt that appeared due to infection of the kidneys by bacilli derived from intestinal lesions.[4]

VACCINE TREATMENT OF BACILLARY NEPHRITIS

Bacillary infection of the kidneys may produce a variety of lesions, ranging from the pyæmic type described by Manson-Bahr and Enright [5] to a simple bacilluria. Many cases in Egypt present the picture of an acute glomerulonephritis with large numbers of bacilli in the urine. These usually respond in a striking manner to the administration of vaccine in appropriate doses. The following case is an example.

CASE 1.—A boy, aged 10, stated that five weeks previously he had suffered from a septic wound on his foot, and for the last fortnight had noticed a gradually increasing œdema of his whole body. His tonsils were enlarged and there was general œdema with some ascites; the blood pressure was elevated. The urine was blood-stained and contained numerous bacilli and pus cells as well as epithelial and blood casts. A catheter specimen gave a pure and profuse growth of coliform bacilli from which a vaccine was prepared. A dose of this vaccine by mouth (5 millions) provoked a focal reaction marked by polyuria and a temporary increase of proteinuria. The blood pressure quickly fell to normal, the œdema disappeared, and the proteinuria was reduced to a trace within a week. Repetitions of the original dose of vaccine by mouth and by hypodermic injection had no obvious further effect, the symptoms having already almost disappeared (Fig. 1).

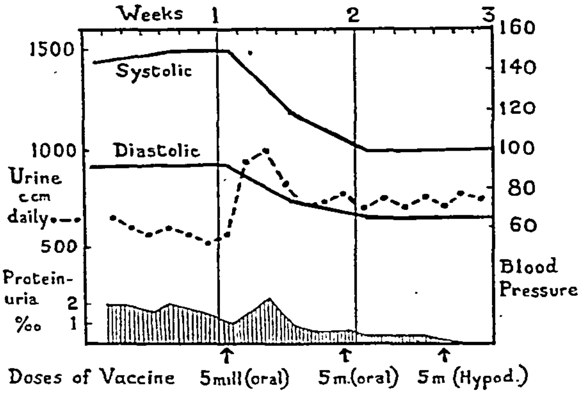

FIG. 1 (Case 1).—In this and subsequent charts the continuous lines represent the blood pressure (systolic and diastolic), the interrupted line the amount of urine excreted daily, and the shaded portions the degree of proteinuria.

The results of vaccine therapy founded on recent and past[4] experience may be shortly summarised as follows: (*a*) the effective dose is quite small in acute cases, the kidneys being very sensitive to the vaccine; (*b*) the response is almost immediate; and (*c*) oral administration is as effective as hypodermic.

GLOMERULONEPHRITIS OF UNCERTAIN ORIGIN

Consideration of the results obtainable by the use of vaccine in cases of bacillary origin led to the investigation of further possibilities. The rapid action of the vaccine when given by mouth suggested that the active constituent (antigen) was readily dissolved and entered the circulation in solution. The prompt effect of small doses favoured the idea that the process was rather a desensitisation than an immunisation.

In cases of bacillary glomerulonephritis the causative bacilli which contained an effective antigen (allergen) were found excreted in the urine. It was possible that in non-bacillary cases due to antecedent infection by other organisms (streptococci, &c.) a soluble product of therapeutic worth might also be found excreted by the kidneys. Trial of such a product could be made in cases of acute glomerulonephritis when the urine was sterile or when the results of culture were untrustworthy on account of a complicating cystitis, &c.

Preparation of antigen.—Since the amount of this hypothetical antigen in the urine was unknown, a simple method of extraction was employed which would avoid loss, though not yielding anything approaching a pure product. Bacterial antigens in solution are readily adsorbed to a precipitate of protein, owing to their colloidal nature; hence any serum globulin precipitated from the urine would contain the product sought for.

The urine from a case of glomerulonephritis was collected with aseptic precautions and centrifuged in sterile tubes to clear it as far as possible of suspended matter. Filtration was not used, because small quantities of antigen are entirely adsorbed by the filter material. The cleared urine was put in a series of four sterile centrifuge tubes of 15 c.cm. capacity, 8 c.cm. in each; to every tube a saturated solution of ammonium sulphate was added until slight clouding occurred from commencing precipitation of globulin. From 4 to ·5 c.cm. sufficed, depending on the amount of globulin present; the exact quantity was determined for one tube and this added to the others, the contents of each tube being thoroughly mixed. The resulting precipitate was collected in a compact deposit by centrifuging for 15 minutes; the tubes were then emptied of fluid by inversion and left to drain aslant for a few minutes; a little sterile water was used to remove traces from the open ends of the tubes. The precipitate was redissolved in carbol-saline, so that 1 c.cm. of the solution corresponded to 5 c.cm. of the urine. It was stored for two or three days in sterile rubber-capped vaccine bottle to secure sterility. A diluted extract was also made, of equal volume to the urine, from the strong solution. For urines that contained insufficient globulin or were protein-free (experimental cases) the necessary globulin had to be supplied; one drop of normal human serum to each 3 c.cm. of urine was sufficient.

The reaction of the extract was slightly acid from traces of ammonium sulphate; it contained some suspended matter and a small proportion of urea. The product thus obtained proved unirritating; no local reaction followed subcutaneous injection.

TREATMENT BY ANTIGEN

The therapeutic effect of this product is illustrated by the case-histories and charts below. The dose of the urinary extract is given as its equivalent in urine.

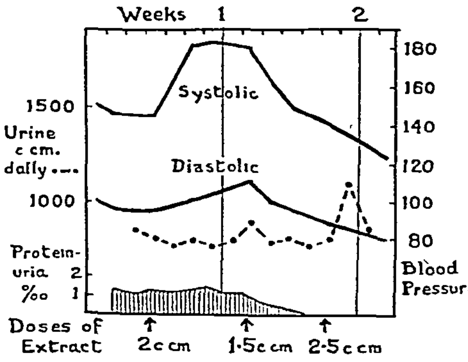

FIG. 2 (Case 2).

CASE 2.—A man, aged 25, was admitted for general œdema with hæmaturia of 18 days' duration. There was no history of antecedent illness; the Wassermann reaction was negative. Blood-urea 40 mg. per 100 c.cm. The urine contained cellular casts and free erythrocytes; no bacilli and 1½ parts of albumin per 1000. Extra serum was added to the cleared urine to obtain a sufficient precipitate of globulin. It will be seen from Fig. 2 that the first dose of extract (equivalent to 2 c.cm. urine) was too large and provoked a rise of blood pressure. The second was smaller and was followed by an immediate fall of the blood pressure with a diminution of the œdema and proteinuria. A slight diuresis was provoked by a third dose, after which no signs of disease remained.

CASE 3.—A man of 40 was admitted for increasing œdema that had appeared 2 or 3 weeks before. He gave a previous history of furunculosis; Wassermann reaction negative. Blood-urea 50 mg. per 100 c.cm. The urine contained granular and hyaline casts with an excess of erythrocytes; no organisms. Treatment was begun with small doses of the adsorbate preparation with the effect shown in Fig. 3.

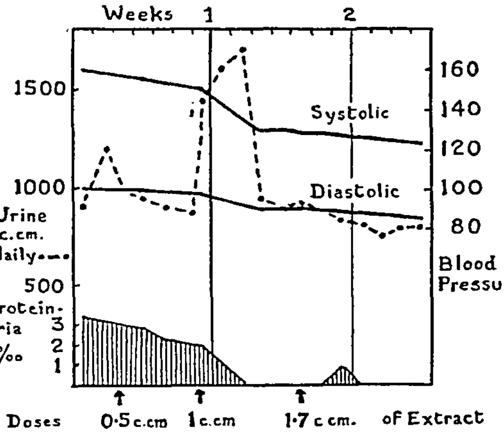

FIG. 3 (Case 3).

In chronic cases of glomerulonephritis the effect of this treatment is often striking, though the albuminuria may remain little affected. But when the renal disease has advanced to the stage of contracted kidney, little or no benefit results.

CASE 4.—A male of 25 was admitted for œdema of varying degree that had been present for four years. The Wassermann reaction was negative. The blood pressure was high and the left ventricle hypertrophied, but there were no changes in the fundi. The urine contained very many casts, hyaline and granular, with some included cells. Blood-urea 70 mg. per 100 c.cm. Treatment with the urine extract produced a fall of blood pressure with increased urinary excretion and disappearance of the œdema, but there was little effect on the proteinuria (Fig. 4).

CASE 5.—A female, aged 28, had suffered from general dropsy one year previously; this had disappeared to return one month before admission. The Wassermann reaction was negative; the blood pressure normal. On examination there were signs of hepatic and intestinal infestation with *Bilharzia mansoni*. The urine contained numerous epithelial and granular casts with erythrocytes; bacilli were not obvious but a coliform bacillus was recovered on culture of a catheter specimen. Treatment with extract in progressive doses started a diuresis with disappearance of the œdema (Fig. 5).

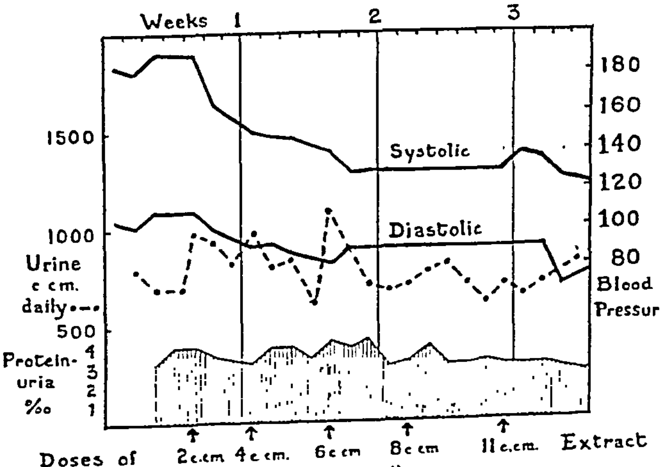

FIG. 4 (Case 4).

Treatment by injection of urine extract appeared of distinct value in acute glomerulonephritis and for exacerbations or relapses in chronic active forms of the disease. It is seemingly useless in the degenerative stage when fibrosis is advancing. It may be worth trial in some cases of nephrosis when a chronic or recurrent infection—often pneumococcal[6]—may be present.

In employing this treatment it is recommended that the urinary extract be made soon after admission of a patient, but its use may well be postponed until the effect of rest, warmth, and a restricted intake has been observed. The effective dose varies roughly in an inverse ratio to the acuteness of the renal disease. In acute cases of glomerulonephritis an initial dose corresponding to 0·25 c.cm. of urine may be tried; generally a first dose of 0·5 c.cm. is safe unless the urine output is very seriously reduced. Larger doses are usually needed for cases in a later stage with normal blood pressure. Injections in increasing amounts may be given twice a week until an effect is produced.

DISCUSSION

The effect of the urine extract on ordinary cases of glomerulonephritis closely corresponds with the results of vaccine therapy in cases of bacillary origin. Their mode of action appears identical. It therefore appears that the urine extract contains a substance of the nature of an antigen.

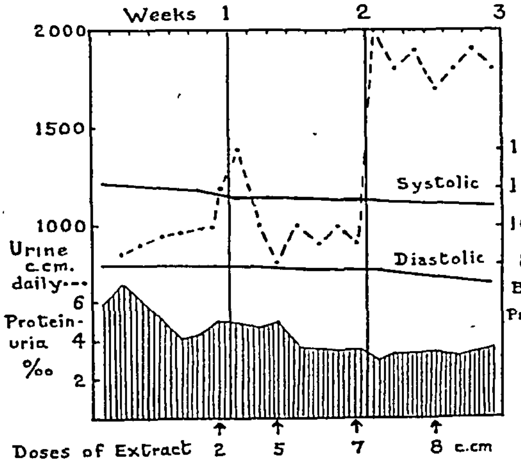

FIG. 5 (Case 5).

No evidence of a "physiological" effect of the vaccines or extracts was obtained. Tests on patients without nephritis showed that neither preparation, even in large doses, had any effect on renal function or on the blood pressure. Considerable doses of an autogenous urine extract were tried on a case of primary hypertension (non-renal) in a young woman of 19, but were useless.

The results of this investigation support the theory that hæmorrhagic glomerulonephritis with œdema and raised blood pressure is of an allergic nature, since it is favourably influenced by treatment aiming at desensitisation and immunisation. In cases of bacillary origin there is evidence that a repetition of infection from the intestine, as occurs in mild cases of *Bilharzia mansoni* infestation, may precipitate an attack of glomerulonephritis. On the other hand, cases consecutive to scarlet fever and tonsillitis can hardly be explained by a theory of reinfection. The most plausible explanation lies in the association of acute nephritis with exposure to cold, for which there is abundant clinical evidence. An acute glomerulonephritis may develop in a few hours after a severe chilling in a patient who is unaware of a previous infection. I have read of a certain hospital bed in which scarlatinal patients invariably developed nephritis; it stood in a direct draught. Hospital sisters informed me that boys were more liable than girls to develop nephritis after scarlet fever, since they were apt to get up at night and run about scantily clothed—unless kept under unremitting supervision. The winter prevalence of trench nephritis and its relation to cold and exposure were evident in the Great War.

Since an allergic reaction depends on the exposure of a sensitised individual or tissue to the specific allergen, the effect of exposure to cold is probably to bring about some liberation of allergen. It may be similar to the dissociation of an antibody-antigen combination that occurs when a neutralised mixture of diphtheria toxin-antitoxin is exposed to a low temperature. Under these circumstances freed allergen (antigen) reacts with the sensitised small vessels, particularly in the glomeruli during excretion. There appears to be a special proclivity of small vessels to be involved in an allergic reaction, and it is interesting to find corroborative evidence in the distribution of amyloid deposits which follow prolonged struggles to obtain immunity.

SUMMARY

A substance having an antigenic effect is present in the urine of cases of acute and subacute glomerulonephritis.

Treatment by injection of an autogenous urinary extract appears of distinct value for non-resolving cases of acute glomerulonephritis and for exacerbations or relapses in chronic active forms of the disease. It seems to be useless in the degenerative stage when fibrosis is advancing.

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CHRONIC LEUCOPENIC LYMPHADENOSIS

COMPLICATED BY TUBERCULOSIS

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THE patient was a well-developed man, aged 54 at the time of his death on Sept. 14th, 1936, who had been intermittently under observation at the German Hospital since his first admission in July, 1934. The history given on admission was that during the previous seven years he had often felt weak and for two years he had looked pale.

The account up to Dec. 13th, 1935, when we showed the patient at the clinical section of the Royal Society of Medicine [1] may be summed up as follows:

Under observation since July, 1934, his condition has varied a little from time to time. He has been treated with arsenic, iron, and a liver diet or liver extract (Hepatopson), and in September, 1934, his hæmorrhoids were operated on. There has been a varying splenomegaly (spleen felt three fingers-breadth below the costal margin on Nov. 14th, 1935) and slight enlargement of the liver, but practically none of the superficial lymphatic glands. Occasionally there has been a purpuric petechial eruption. On one or two occasions the capillary resistance (Rumpel-Leede) test gave a positive result. Nothing abnormal by examination of the eyes, the thoracic organs, and urine. Negative Wassermann reaction. Negative direct and indirect Hijmans van den Bergh reactions.

On Nov. 14th the patient was up in the ward and had decidedly less anæmia than he had a year ago and when he first came under observation, but there was enlargement of the spleen and (slight) of the liver, though not of the superficial lymph glands. Blood count (Nov. 14th, 1935): hæmoglobin, 78 per cent.; erythrocytes, 3,400,000; colour-index, 1·15; leucocytes, 2500 (eosinophils 1 per cent., myelocytes 1 per cent., polymorphonuclear neutrophils 8 per cent., lymphocytes 90 per cent.); megalocytosis; no marked poikilocytosis, anisocytosis, or polychromasia; recticulocytes, about normal proportion; thrombocytes, 120,000 per c.mm. of blood. In this blood count the absolute lymphocyte count is 2250 per c.mm. of blood. The maximum normal average is said to be 2000, and in this case in fourteen blood counts between July 24th, 1934, and July 29th, 1935, the absolute lymphocyte count varied from 920 to 5376, the average being 2594; the absolute count of all the other white cells combined varied from 155 to 1421, the average being 654. On the occasion of one of these blood counts the patient's temperature was subfebrile, but on the other occasions the temperature was normal.

It should be remarked that in July and August of 1934 there were a few megaloblasts and normoblasts in the blood counts, as well as slight poikilocytosis and anisocytosis. Nevertheless, in spite of the improvement with regard to the anæmia, we believe the case to be one of aleukæmic lymphadenosis.

Sternal puncture (Nov. 23rd) for microscopical examination of bone-marrow cells by Henning's method [2] gave us diluted blood containing bone-marrow elements. Besides fairly normal-looking erythrocytes there were numerous nucleated red cells, mostly normoblasts, many of them with strongly basophil cytoplasm; most of the white cells were lymphocytes, giving a negative oxydase reaction, but there were also fairly numerous cells of the granulocyte series giving a positive oxydase reaction, including polymorphonuclear neutrophils, metamyelocytes, and myelocytes. There were hardly any eosinophils or mast-cells. We saw no megakaryocytes, but there were a few little clumps of thrombocytes. A differential count of 100 of the white cells gave: myeloblasts, 1 per cent.; myelocytes, 1 per cent.; metamyelocytes, 2 per cent.; polymorphonuclear neutrophils, 2 per cent.; lymphocytes, 94 per cent. During this count 51 nucleated red cells were seen, of which 14 were pro-erythroblasts (with strongly basophil cytoplasm), 8 were macroblasts, and 29 were normoblasts. The blood count on Dec. 11th, 1935, after taking two one-grain nuclein Tabloids (B. W. & Co.), thrice daily, for eighteen days, was: hæmoglobin, 70 per cent.; erythrocytes, 3,480,000; leucocytes, 3200 (83 per cent. lymphocytes).

PROGRESS OF CASE AFTER DECEMBER, 1935

The patient left the hospital on Dec. 23rd, 1935, but continued under out-patient treatment.

In May, 1936, his general condition remained much the same. He was able to walk about. Blood count on May 9th, 1936: hæmoglobin, 73 per cent.; erythrocytes, 3,780,000; colour-index, 0·96; leucocytes, 4100 (eosinophils 1 per cent., polymorphonuclear neutrophils 12 per cent., lymphocytes 87 per cent.); anisocytosis; slight poikilocytosis. No thrombocyte count was made on that occasion, but on March 28th it was 80,000, and on April 15th it was 104,000 per c.mm. of blood. In May the spleen could just be felt below the ribs, and there was slight enlargement of the inguinal lymph glands.

On August 29th, 1936, he was readmitted to hospital with some dullness to percussion over the base of the left lung, evidently due to pleural effusion. The lower edge of the liver reached down to the umbilical level. The spleen could be felt just below the costal margin on inspiration. There was slight enlargement of the left axillary lymph glands.

After readmission there was moderate pyrexia (99°–102·2° F.), pulse 86 to 122 per minute, respiration about 30. Brachial blood pressure 100/80 mm. Hg. The blood sedimentation-rate was greatly increased (13 minutes instead of the normal of over an hour by the method employed). Blood count (August 30th): hæmoglobin, 70 per cent.; erythrocytes, 4,000,000; colour-index, 0·9; leucocytes, 2100 (eosinophils 1 per cent., polymorphonuclear neutrophils 21 per cent., lymphocytes 77 per cent., monocytes 1 per cent.); slight megalocytosis; poikilocytosis; polychromasia; one nucleated red cell (normoblast) seen during the count of 100 leucocytes. The urine showed a trace of albumin, and a very few tube-casts and erythrocytes in the centrifuge sediment. A radiogram of the thorax showed pleural effusion on the right side and some enlarged hilum shadowing on both sides, especially on the right side.

The pleural effusion was tapped on August 31st, Sept. 1st, and Sept. 7th, and on each occasion slightly sanguineous pleural fluid (450–1750 c.cm.) of specific gravity 1015, was withdrawn. The paracentesis of Sept. 1st was followed in about 12 hours by an urticarial eruption, which disappeared in a few days.[3] The pyrexia continued, and the patient became gradually weaker and died on Sept. 14th.

NECROPSY AND MICROSCOPICAL EXAMINATION

The heart (weight 260 grammes) showed nothing special. There were enlarged hilum glands on both sides, especially the right. The left pleura was adherent, and there was a considerable pleural effusion on the right side. The pleura over the ribs on the right side was thickly studded with tubercle-like nodules. The spleen was enlarged (1050 g.); dark red on section, with very obvious trabeculæ; scattered minute white spots on the cut surface. The liver was enlarged (2620 g.); there were many little pale nodules beneath the capsule, and some still smaller ones were seen on section of the liver substance. The kidneys (weight 350 g. together), pancreas, suprarenal glands, stomach, and intestines showed nothing special. At the hilum of the liver there were enlarged lymph glands (up to the size of a hen's egg), which on section showed a mottled surface, red with little white nodules and patches. There were some similar enlarged paraortic lymph glands in the abdomen; and what seemed to be a similar gland stuffed with tubercle-like nodules was removed from between the parietal pleura and the diaphragm in the right costo-phrenic angle. The bone-marrow at the middle of the right femur was milky-red in colour; the microscopic examination of films showed that the white cells were nearly all lymphocytes (96 per cent. according to a differential count); by the oxydase test 98 per cent. of the white cells gave a negative reaction; only six nucleated red cells (4 normoblasts and 2 megaloblasts) were seen during a count of 100 white cells.

Microscopic examination of the liver showed well-marked interacinous lymphocytic infiltration, as seen in typical cases of lymphatic leukæmia (lymphadenosis). This was best marked in the little pale nodules. The spleen showed great irregular enlargement of the Malpighian corpuscles by the growth of lymphocyte-like cells, which obliterated all trace of the germinal centres of Fleming. Some of these lymphocytic patches doubtless corresponded to the minute white spots seen by naked-eye inspection of the freshly cut surface of the spleen. Both the liver and spleen gave a moderate Prussian blue reaction. The tubercles in the right pleura and the tubercle-like nodules in the lymph glands were necrotic and apparently genuine tuberculous lesions, though only very few typical giant cells and no tubercle bacilli were detected. A moderately enlarged lymphatic gland from the right groin also showed tuberculous structure. A section of the bone-marrow from the middle of the right femur proved that it still contained much fat, but was permeated with white cells, mostly lymphocyte-like.

It may be noted here that the patient had several little nodules on his face, varying in size from a pin's head to a split-pea. He also had a very noticeable nodule at the tip of his tongue of about the size of a split-pea. According to the patient all these nodules had appeared during the last years of his life. Four of the facial nodules and the nodule from the tip of the tongue were kindly examined microscopically by Dr. W. Freudenthal, who found all the facial nodules to be examples of nævus mollis—with typical so-called "nævus cells"; the nodule from the tongue was of fibrous structure, a kind of "fibromatous nævus." These nodules had therefore nothing to do with the patient's lymphadenosis.

REMARKS

In this remarkable case of chronic lymphadenosis, the permanence of the leucopenia and granulocytopenia was a striking clinical feature. In the 27 differential leucocyte counts taken at the hospital during the patient's life the average percentage of lymphocytes was 81 per cent., whilst the total leucocyte count averaged 3407.

After the patient's death the typical interacinous lymphocytic infiltration of the liver seen by microscopic examination, as in cases of lymphatic leukæmia, was by itself sufficient to prove the correctness of the lymphadenosis explanation[4] of the clinical features. But the miliary tuberculous process at the end was not suspected before the post-mortem examination.

In an article on the Relations of Pulmonary Tuberculosis to Other Diseases in 1904, one of us[5] wrote: "Several cases have been published illustrating the association of tuberculosis with leukæmia—mostly cases of lymphatic leukæmia.[6] It has been observed that after tuberculous infection there is often retrogression in the size of the spleen and lymphatic glands with diminution in the number of the white cells in the blood; for that reason Prof. H. Quincke of Kiel suggested the therapeutic employment of tuberculin in leukæmia. Retrogression of leukæmia symptoms has also been observed as a result of erysipelas and other microbic invasions. Susmann[7] suggested that the excess of nucleo-albumin and the increased phagocytic power of the blood in leukæmic patients might exercise an antagonistic action in regard to tubercle. It is not certain, however, that leukæmia is really antagonistic to tuberculosis, though tuberculosis seems to check the progress and even to cause retrogression of leukæmia."

Since 1904 there have been a number of papers on the relation of leukæmia and tuberculosis, amongst which may be mentioned those by Émile-Weil and Coste,[8] Quentin,[9] and Godfried Holler.[10] In our present case one may suggest that the presence of some latent, quiescent tuberculous focus tended to make the lymphadenosis one of the aleukæmic kind and hindered its active progress, though afterwards an acute miliary resuscitation of the tuberculosis process caused the death of the patient.

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(*Continued at foot of opposite page*)

CARDIOVASCULAR EFFECTS OF BENZEDRINE

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Benzedrine was first employed clinically in the treatment of narcolepsy, and success was reported by Prinzmetal and Bloomberg,[1] who treated 9 cases, and Ulrich, Trapp, and Vigdoff,[2] who treated 6. More recently it has been administered for other conditions, including gastro-intestinal spasm. The first paper to be published in this country on its use in psychiatry was by Peoples and Guttmann,[3] and it led to our undertaking an investigation of the drug at the Cassel Hospital. This will form the subject of a future report. Meanwhile it has seemed desirable to record the phenomena observed in the cases described below.

OBSERVATIONS

The patients selected for the study were mild neurotics and psychotics but were physically fit. The drug was given in amounts ranging from 10 to 30 mg. Preliminary readings of the pulse and blood pressure in both standing and lying positions were made at 9 A.M. immediately before administration of the drug. Similar readings were taken throughout the day and the psychic state carefully recorded during the total period of observation. A certain number of normal subjects were also investigated, making a total (including patients) of 20. In addition control tests were carried out using tablets of a neutral substance (calcium lactate) identical in appearance with the benzedrine tablets so that the patient did not know when he was getting the drug. Pallor, flushing, palpitation, and both increases and decreases in the pulse-rate and blood pressure were noticed in some of the patients receiving benzedrine, and in the six cases recorded below the effects included collapse, multiple extrasystoles, heart-block, and pain in the chest radiating into the left arm.

Case 1.—Male, aged 35; weight 14 st. 4 lb. After 20 mg. sustained a maximum blood-pressure change of from 125/80 to 138 90 in 4 hours and a maximum pulse-rate change from 115 to 88 in 7 hours in the standing position. Fifteen hours after administration a sharp shooting pain in the left precordium was felt.

Case 2.—Male aged 35; weight 10 st. 10 lb. After 20 mg. sustained a maximum blood-pressure change of from 125/85 to 153 94 and pulse from 85 to 115 in 4 hours in the lying position. After 1½ hours pain was felt in the left chest and after 10 hours a pain in the left posterior axillary region.

Case 3.—Female, aged 20; weight 7 st. 6 lb. After 20 mg. sustained a maximum change in blood pressure from 122/75 to 150/94 in 7½ hours and a pulse change from 78 to 104 in 4 hours in the lying position. After 7 hours this patient complained of a "funny feeling" in the chest not quite amounting to pain.

Case 4.—Male, aged 24; weight 9 st. 6 lb. After 20 mg. sustained a maximum change in blood pressure lying from 140/64 to 148/100 in 7½ hours and a pulse change 84 to 108 in 6 hours. After 10 hours he developed pain in his left chest and pain down his left arm with exercise. This patient had been hypochondriacal for some time, complaining of tachycardia, pain in his abdomen, chest, legs, and arms, but the pain in his left arm was more severe after the test.

Case 5.—Female, aged 56; weight 7 st. Complained of feeling "rocky and dizzy" and was nauseated 1 hour after 20 mg. The maximum blood-pressure change was from 120/85 to 95/80 and of pulse from 104 to 96 in 2½ hours in the standing position. After 5½ hours occasional extrasystoles were noted.

Case 6.—Male, aged 49; weight 12 st. 4 lb. This case was diagnosed as one of involutional depression with paranoid ideas. Benzedrine (30 mg.) was administered as described, and there was a maximum rise in systolic blood pressure (lying) 4 hours after administration, rising from 120 mm. to 150 mm. This was accompanied by a parallel rise in systolic blood pressure (standing) from 130 mm. to 145 mm. during the same interval. The diastolic (standing) also reached its maximum at the same time (90–100), but the lying diastolic maximum (65–95) 1½ hours earlier. The pulse (standing and lying) did not reach its maximum till 7½ hours (60–100 and 65–80 respectively). The psychic changes will be noted in a later report. The patient complained of "slight pain" in the left side of his chest 45 minutes after the drug. He also noted a singing in his ears. Two and a half hours later he was a little flushed, breathless, and said he felt as if he had "taken rather a lot of exertion." At 6.30 P.M. he said he felt "bilious," complained of nausea and loss of appetite. He continued like this till 8.10 P.M. when he suddenly "collapsed." He was seen and found to be cold and clammy with cyanosed lips. His pulse was slow, soft, and collapsible and every fourth beat was dropped. At this time he vomited. He was given an injection of camphor in ether. At 9.15 P.M. his pulse was still slow (56) and examination showed a 1/4 heart-block with an occasional extrasystole. The first sound at his apex was intensified, but no bruits were heard. Blood pressure 120/76. The next morning at 9.30 P.M. his pulse-rate was still 56. His apex-beat was invisible and impalpable. The sounds were faint at the apex and inaudible at the base. The nausea had ceased and he felt much better. Blood pressure 114/68. 4.45 P.M. the same day his colour had returned and although his pulse was still slow he was much better. Blood pressure 130/80. The patient's cardiovascular system on admission showed nothing abnormal and there was nothing to indicate the likelihood of this dénouement. Observation during the day showed the effect of the drug apparently wearing off as evidenced by diminution of the tinnitus, &c.

COMMENT

We can find no record elsewhere of such severe cardiovascular effects induced by benzedrine.

Prinzmetal and Bloomberg[1] gave from 10 to 80 mg. of benzedrine daily to 9 patients with narcolepsy and mention no ill effects other than "psychic troubles" in two patients.

Peoples and Guttmann,[3] giving from 10 to 80 mg. to 25 persons, mention that the usual result was a rise of blood pressure and of pulse-rate. No other cardiovascular phenomena were noted.

Myerson and Ritvo[4] report that in 4 out of 200 patients given doses of from 10 to 40 mg. of benzedrine unpleasant "chilly sensations, flushing, diarrhœa and general malaise" occurred. In only one of the patients was there a severe reaction (chills, nausea, collapse, restlessness, and diarrhœa) and as this reaction did not occur for several hours after the benzedrine

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(References continued from previous page)

4. Cf. Weber and Schlüter: Significance of Systematised Interlobular Infiltration of the Liver with Lymphocyte-like Cells, THE LANCET, 1936, i., 1115.
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6. See W. J. Susmann's table of cases, Practitioner, 1903, lxi., 536; Neutra, W.: Zeits. f. Heilkunde, 1903, xxiv., 349 (with bibliography); Quincke, H.: Deut. Arch. f. Klin. Med., 1902, lxxiv., 445; Carpenter, G.: Med. Press, 1903, cxxvi., 79
7. Susmann: Loc. cit. (ref. 6).
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10. Holler, G.: Klin. Woch., 1931, x., 1663.

was given, they doubted that it was due to the effect of the drug. Owing to the effect of benzedrine on blood pressure they advise caution in its use in severe cardiac disease, but state that "on the whole we believe that the drug is non-toxic and in the doses recommended may be used safely wherever desired. . . . No idiosyncrasy to the drug in single doses except in some cases of mental disease." In this same article they also mention that Myerson and other workers have administered similar doses to a series of several hundred patients for other purposes without observing any ill effects.

Davidoff[5] gave 10 to 30 mg. benzedrine to 30 self-absorbed patients. He states that dosage of 10 to 20 mg. is relatively non-toxic except in patients with cardiac or hypertensive signs. In 2 of his 30 cases administration had to be discontinued due to a fall in blood pressure; one patient had a cardiac condition and the other was neurosyphilitic.

Myerson et al.[6] reporting the results of administering 9 to 50 mg. of benzedrine subcutaneously to 18 mental patients state that "slight cardiac arrythmia appeared in four cases. This was either of the sinus type or due to extrasystoles." Their intensive investigations during which they established a rise in blood pressure, especially systolic, a fall in pulse-rate, a rise in spinal fluid pressure, and a variable increase in the red and white blood counts (the latter being chiefly a polymorphonuclear rise) without change in cell volume or hæmoglobin content, demonstrate marked effects on the cardiovascular system.

Myerson[7] reports the effect of doses of about 30 mg. daily on mood and fatigue in 9 patients. In 2 patients who were paranoid the drug had to be stopped due to the manner in which they expressed their hostile feelings after its administration. In this article he makes no mention of untoward cardiac complications. Ulrich et al.[2] mention no cardiac complications during the administration of 20 to 50 mg. to 6 cases of narcolepsy. Guttmann[8] discussing the effect of benzedrine on depressive states mentions no alarming cardiovascular effects.

This report is made: (1) because no case similar to No. 6 has so far been reported; (2) because we believe that, until more precise knowledge of the cardiological effects is obtained, caution should be exercised in the administration of doses of 10–20 mg. or more, particularly in elderly subjects; and (3) because detailed cardiological investigation of the effects of the drug appears desirable.

We would like to express our thanks to the distributors, Messrs. Menley and James Ltd., for kindly furnishing us with a generous supply of the drug to carry on this and other work.

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PRINCESS LOUISE HOSPITAL, KENSINGTON.—A dinner in support of this children's hospital was held at Claridge's on Dec. 8th. An appeal is being made for £30,000 to complete the building scheme and to liquidate the debt. Admissions have to be refused because of lack of room, and many nurses must live in what should be the fourth ward of the hospital.

ROYAL NORTHERN HOSPITAL, LONDON.—The foundation-stone of the Beecham Laboratories, an extension to this hospital, was laid on Dec. 8th by Mr. Philip Hill. Beecham's Pills Ltd. has provided the hospital with a pathological department at a cost of £12,500 and is paying a sum of £1000 a year towards its maintenance. The hospital is appealing for £350,000 to provide other additional departments.

Clinical and Laboratory Notes

A NOTE ON PAGET'S DISEASE OF THE NIPPLE *

BY SIR LENTHAL CHEATLE, K.C.B., C.V.O., F.R.C.S. Eng.

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WHEN Sir James Paget described Paget's Disease of the Nipple, all he really did was to report certain clinical signs on the nipple which he said were commonly associated with carcinoma of the breast. All this was, and is, perfectly true. I need not state those signs. Since his day four separate conditions have been described which are associated with the classical signs of the disease.

The *first* is that Muir and Jacobaeus have pointed out that the commonest conditions to give rise to those superficial signs is really carcinoma beginning in an upper duct, and which has spread into and among the epidermic cells on the surface of the nipple. In 15 out of my 18 cases this is perfectly true. To understand Muir's opinion it is essential to realise that carcinoma cells can spread in to the epidermis of the nipple without transgressing its natural boundaries.

The *second* condition is the formation of the so-called Paget's cells which develop from the basal epithelial cells of the epidermis itself. These cells are seen in 12 out of my 18 cases. In one of these cases there was no carcinoma in the upper ducts and only these Paget's cells were visible in the epidermis of the nipple. This condition appears to be degenerative in type. The concern—if any—with the ætiology of carcinoma is not at all clear at the present moment.

These two conditions are particularly interesting because of the fact that in each there occurs, in the deeper parts of the breasts, very important neoplastic epithelial changes which have no morphological continuity with either the carcinoma of the upper duct or with the formation of only Paget's cells in the epidermis of the nipple. The presence of Paget's cells alone in the epidermis of the nipple associated with the subjacent neoplastic changes beneath is a fact that seems to indicate a mutual association between them. These neoplastic epithelial changes in the depth of the breast may be:—

(*a*) Papillomatous formations together with non-papillomatous formations in the more terminal ducts and their acini which distend these structures, and although they look malignant, they do not transgress normal boundaries.

(*b*) The development of highly malignant carcinomata. The carcinoma in the upper ducts which give rise to the signs of Paget's disease are not so malignant.

The *third* condition which causes the clinical signs of Paget's disease is the spread of carcinoma deposits into the epidermis of the nipple. The deposits are secondary to a primary carcinoma originating deep in the breast.

The *fourth* state is the carcinoma that begins in the sebaceous glands on the surface of the nipple. I have only one such case and no Paget's cells were present, yet it exhibited the classical clinical signs.

It appears from my observations that the classical clinical signs that Sir James Paget described are

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* Communicated to the Harley Medical Society on Nov. 19th, 1936.

caused by more than one condition. It does not appear to me correct to limit the description of Paget's disease of the nipple only to those states in which the so-called "Paget's cells" are present, although in 12 of my 18 cases they existed.

The matter would be simplified if the clinical signs were regarded as merely of clinical importance and their actual cause determined on the merits of each particular case.

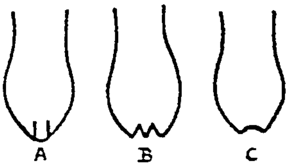
A MINOR OPERATION FOR PHIMOSIS

By Mary Barton, M.B. Lond.

The following details may possibly be of interest to some who are in general practice and who undertake midwifery and the care of infants.

For some years I have been struck by the large numbers of male babies born with a prepuce so tight that although micturition can be normally performed it is quite impossible to draw the prepuce back over the glans, or at times even to expose a portion of the glans. At the same time I have always felt that circumcision should not be performed unless absolutely necessary, and for the past three years I have adopted the following alternative which has been so successful that I have not had to resort to circumcision in a single case where the infant has been under my care from birth.

On the 5th day, if the baby is normal and healthy, I cleanse the parts with soap and water and wipe the prepuce with cotton-wool soaked in surgical spirit. I then draw the prepuce forward with a pair of dissecting forceps and with a pair of sharp blunt-ended scissors I make two small cuts about ¼ in. long through the mucodermal junction in the long axis of the penis and ⅛ in. on either side of the dorsal midline. After the cuts have been made I gently ease the mucous surface of the prepuce from the glans with a blunt-ended probe dipped in acriflavine oil, and it is then possible to draw the prepuce right back behind the glans. The bleeding is very slight and no stitching is required.



The method of incision: C shows the effect after healing.

Each following day during the healing process the prepuce is drawn back and the cuts are swabbed with a little acriflavine oil. This prevents the two surfaces of each cut from adhering together and the cuts heal across horizontally, thus widening the mucodermal circumference of the prepuce by about half an inch. By the 14th day healing is complete and the mother is instructed to draw the prepuce back once daily when bathing the child. At the end of 3 weeks it is impossible to detect any signs of surgical interference, the prepuce slips back easily, and over a period of 3 years none of the infants so treated has shown any sign of requiring circumcision.

MEDICAL SOCIETIES

MEDICAL SOCIETY OF LONDON

At the meeting on Dec. 14th, with Sir William Willcox in the chair, a discussion on the

Treatment of Hæmatemesis

was introduced by Dr. H. Letheby Tidy. He dealt with hæmatemesis due to peptic ulcers, taking the three stages—immediate treatment, treatment in the first few days until the case became one of ulcer, and the treatment of recurrent hæmorrhages. Statistics showed that about 25 per cent. of ulcer cases had some degree of hæmatemesis, much of it only of a trivial type. Taking ulcers as a whole, and even hæmatemesis as a whole, the fatalities were few, and until recently this had obscured the importance of the subject. Taking as a criterion of seriousness the cases admitted to hospital for that symptom, the mortality was 15–20 per cent. Another criterion was a hæmoglobin less than 30 per cent. In 30 cases of hæmatemesis admitted to the medical wards of St. Thomas's Hospital in six years, there were 5 deaths—a mortality-rate of 17 per cent. These fatal cases he related in detail, remarking that in 3 the death was due to another major morbid condition that would have interfered with any form of treatment. There were 24 out of 27 cases that were correctly judged to be medical cases, and they recovered, the other 3 being transferred to the surgeon's care. If the position were taken up that all cases of chronic ulcer must be operated upon if they could be obtained within 48 hours of the onset, 15 of 16 cases would have been operated upon unnecessarily, as 15 recovered under medical treatment. Another attitude—and he only mentioned it to condemn it—was that one should wait until the hæmorrhage stopped and then operate; that was wholly indefensible.

On what ground could one decide what cases should be treated medically, and what should be operated upon? A supposed distinction between acute and chronic ulcer was unreliable; in his series 3 cases with a short history died, and the autopsy showed they had chronic ulcers. Several hæmorrhages at long intervals occurred in 6 of his cases; they all recovered. There were several recurrences of hæmorrhage before admission in 4, and all recovered. Hæmorrhage just before and just after admission occurred in 3, all of whom died. When a patient collapsed it was not the repetition of the hæmorrhage that was dangerous, but the fact that the patient had not had a chance of recovering from the former bleeding. The question whether a given case should be submitted to surgery depended largely on whether the condition could be described as a collapse. The patient in a dangerous condition did not look as white as a sheet, but was rather of a dusky hue; he did not lie quite still, his brain was not working clearly, and he felt very ill. Such a patient, and no others, should be operated upon, and at once. His experience had been that one case a year for every hundred beds in a general hospital required operation. The mortality of cases that should be operated upon but which were treated medically was about 75 per cent. In his private practice he had never seen a fatal case of peptic ulcer, had never had a case operated upon, and had not had a transfusion carried out. Some of his points in treatment were: to inject morphia on admission, to begin feeding the patient within 24 hours, and to give alkalis within a few hours of admission. He had no fixed rules about dehydration, but he did not allow a patient to suffer from thirst, which was allayed by small sips of fluid.

He allowed a pillow, and did not raise the end of the bed. He did not think atropine was of use.

Mr. G. **Gordon-Taylor** considered there was little disagreement between physicians and surgeons on the treatment of hæmorrhage in acute peptic ulcer. But medical measures and blood transfusion did not control all cases and there was a mortality in this condition of about 3 per cent., showing that in a few cases in which life was gravely menaced surgery might be required. It was very important before an incursion into surgery to exclude such conditions as the hæmorrhagic diathesis, angiostaxis, hepatic cirrhosis of the liver, and septicæmic infections such as that of the hæmolytic streptococcus. He had now operated upon 11 cases of hæmorrhage from acute peptic ulcer, and each time at the request of a medical colleague. His present preference was for gastrotomy, the stomach being opened and bleeding vessels sought and secured by ligatures or mattress sutures. He thought continuous use of adrenaline for bleeding from chronic ulcer was to be condemned. There was no one operation in surgery which would give a patient complete protection against hæmorrhage from peptic ulcer.

In the treatment of severe hæmorrhage his first advice would be to collect as many donors as possible, as it was almost impossible in any given case to foretell what would happen, when or how the bleeding would stop. He would give continuous-drip blood transfusion, especially if the patient's hæmoglobin was under 50 per cent. and the pulse-rate 100 or more. He would have every case of hæmatemesis admitted to a fully equipped institution, for he did not agree that cases of severe hæmatemesis should not be moved, and several patients in a serious condition had been transported successfully from the counties round London to the Middlesex Hospital. Secondary hæmorrhage was a very grave complication, and one series had a mortality of 78 per cent. The object of operation in both kinds of ulcers was to deal with the bleeding point; his best results had followed indirect operation: pyloric occlusion and gastrojejunostomy in duodenal ulcer cases. But the most appropriate method was that which seemed advisable in the individual case. Before deciding all factors must be considered, such as intercurrent disease, antecedent illness, general physical conformation, personal courage, the kind of institution in which the patient was placed, and the general environment. He preferred to operate on these cases under splanchnic anæsthesia with slight general anæsthesia induced in the old-fashioned way by a whiff of chloroform and ether. By this means he felt convinced that the chances of recovery were enhanced.

The chief indication for operation was severe hæmorrhage, though in most of the very severe cases the patient was dead before any surgical measure could be undertaken; he had twice seen fatal hæmorrhage from duodenal ulcer that had eroded the hepatic artery. A second immediate indication was in the comparatively rare cases of concomitant perforation and hæmatemesis; and a third would be in cases in which drip transfusion had failed to control the hæmoglobin.

Until the time came when medicine could control gastric and duodenal ulcer as surely as it could in diabetes, pernicious anæmia, and some tropical diseases, hæmatemesis would continue to menace life. He pleaded for a closer and earlier coöperation between physician and surgeon in these cases at an early stage. And he stressed the great value of drip transfusion, which might be not only hæmostatic, but in any case, whether surgical or not, improved the well-being of the patient.

Dr. G. **De Bec Turtle** spoke of the disability caused by hæmatemesis in industrial life, and instanced his figures obtained at a chocolate factory. There were 15 cases, 2 of which had to be treated surgically, and 2 recurrences. That there were so few of the latter he attributed to the follow-up methods and care employed at the factory, and to the finding of suitable work for patients who had had ulcer. He considered that a contributory factor in the production of gastric ulcer was the constant change of working shifts, from day to night, with the consequent alteration of meal and sleep times. From the medico-legal point of view, it had been argued that as the bleeding sometimes occurred while the man was at work, it came under the compensation scheme, but a large series of American figures showed that a large proportion of cases (76 per cent.) had their attacks of bleeding while they were unemployed, some while they were in bed. If blood transfusion was being done, the pulse-rate gave, he considered, a good indication whether the bleeding was still continuing; if the pulse-rate was rising it portended danger.

Dr. **Arthur Hurst** considered that the profession had been wrong in depending on hospital statistics for forming a judgment on these cases, as hospital cases were selected ones. Some time ago he wrote to 27 general practitioners who had been in practice for a considerable time, and the net result of their replies was that in 677 cases there were 9 deaths, a mortality-rate of 1·3 per cent. Morphia was given by those practitioners early in the case, with starvation for 24 to 48 hours, and very rarely transfusion. Only 3 of the 677 patients were operated upon, and all 3 died. He agreed it was possible to recognise the cases that were likely to die; it was his experience and general feeling that the small number that required operation were generally inoperable. In one case it was found post mortem that the ulcer entirely surrounded the duodenum, and its base was fixed to the common bile-duct and inferior vena cava. If Mr. Gordon-Taylor had been led away by the supposed merits of drip transfusion he must have forgotten the value of iron. Transfusion if carried out should be only small, and it should not be repeated unless bleeding recurred. Iron citrate, grs. 30 thrice daily, at once began to send the hæmoglobin up.

Prof. J. A. **Ryle** said the chief criticism he had to offer on the discussion was that people were still speaking on the basis of opinion rather than of fact, and that it was necessary to ponder longer the question of prognosis. He did not know how this was to be more accurately studied, whether by a big collective investigation or other means; but it was not enough to have gross figures of mortality, as in gastric and duodenal ulcer cases there were other factors to consider, and in children the mortality from hæmorrhage was very small. In 10 fatal cases among his private cases, there was gross disease of a different kind in 6. Other conditions to consider were age, sex, economic circumstances, whether the patient had or had not been moved to hospital, and so on. And it was necessary to know the prognosis when cases were treated by rest and conservative measures, when transfusion was done, and in various means of feeding. Christiansen had stated that the mortality in ulcer cases treated medically had doubled since transfusion was introduced. Even transfusion itself was complicated by the two methods of continuous-drip transfusion and small intermittent transfusions. It was not yet known what were the factors that contributed to morbidity and fatality in a patient who was bleeding. Many assumed the patients died from anæmia, but he did not consider that had been proved; patients having a high hæmoglobin value could yet die, and those with a low hæmoglobin could survive. It was known, however, that gross chemical disturbances followed hæmorrhage, with an upset of the acid-alkaline balance in the body.

Dr. Izod Bennett agreed that there were still many factors about which the profession still remained in profound and dangerous ignorance. Most would agree that one of the great difficulties in deciding on correct treatment of intestinal hæmorrhage was that one never knew when hæmorrhage had stopped until a few days later, and then it was realised that it had ceased some days previously. Even in cases admitted into special research wards, and studied carefully by Wright and Lelander, it was found almost impossible to select at the outset the cases that were serious, and it had been his experience that some of the very grave cases had been admitted as trivial ones. It had been very valuable to carry out hæmoglobin readings every two hours; when the fall called for drip transfusion, it was not checked by that measure. If transfusion was done before the anæmia reached a grave level, the transfusion seemed to promote further hæmorrhage. In 60 cases in his work there had been 4 deaths.

Dr. George Graham agreed with Dr. Hurst, except that he considered when a patient died after having had blood transfusion he succumbed because he had not been given enough. If 2–3 litres of blood had been lost, it was not reasonable to expect that the deficiency could be made good by giving from 600 to 1800 c.cm. In the last eight years he had had 3 deaths from hæmorrhage after severe hæmatemesis out of 50 cases.

Dr. R. S. Aitken said that in spite of the soothing statistics which had been quoted, physicians and surgeons recognised as they grew older that people did die distressingly often as an immediate result of hæmorrhage from ulcer. Why it occurred more often in hospital than in private practice was yet to be discovered.

Sir Edmund Spriggs said that deaths from hæmorrhages in gastric and duodenal ulcer were rare in comparison with the total number of cases. Of 502 cases of gastric and duodenal ulcer in his experience, 6 were known to have died directly from the hæmorrhage; of those, 3 were old patients, and he did not think surgery would have saved them. If the necessary skill and technique were available—and only then—it was common sense to find a bleeding artery and put a ligature round it. He usually advised against moving bad cases of bleeding a long distance for institutional treatment, but his advice was not always followed, and yet he had not known of any serious consequences. Statistics, he concluded, were valuable, but a physician would be sadly wanting in his art if he was influenced by them in treating the individual.

Dr. Herman Taylor said he had had 5 grave cases, and he operated on them all. Of these, 2 were gastrojejunal ulcers and they recovered, the 3 other cases died, but before they died they were given as much blood as they had lost by their hæmatemesis, and their intestines were found to be loaded with blood. In one of them little else was found post mortem beyond a little œdema of the lungs. He had wondered whether the presence of so much blood in the intestine resulted in the absorption of some toxic substance, which, absorbed into the system, hastened or caused death.

ROYAL SOCIETY OF MEDICINE

UNITED SERVICES SECTION

At a meeting of this section held on Dec. 14th the chair was taken by the president, Surgeon Rear-Admiral J. Falconer Hall, and Major H. S. Blackmore read a paper on

Air-raid Precautions

with special reference to their medical aspects. It was very important, he said, that arrangements should correlate, and work in together. The authorities had decided about 18 months ago that the subject must come into the open and be properly organised. A special Air Raid Precautions Department of the Home Office had been established. The first task had been education; an anti-gas school had been started, and gave fortnight's courses as well as shorter ones designed to give a bird's-eye view to organisers. A series of pamphlets was being published to correspond with both groups, the organisation publications being called memoranda and the technical ones handbooks. The latter dealt almost entirely with gas; No. 1 was a bedrock book and discussed personal precautions. It was almost a best-seller. No. 2 was the first-aid book, designed for voluntary aid associations. No. 3 would be a clinical handbook for doctors. No. 4 was written for the decontamination section. No. 5 was not in print at the moment. No. 6 was specially written for factories and business premises, and No. 7 for merchant shipping. Three others, not on the market, were for gas, water, and electricity undertakings. The Government had also undertaken collection and storage of protective clothing and antidotes, and stocks were being accumulated. Respirators were being manufactured, with a view to providing enough for the whole population within 12 to 24 hours on emergency arising. Each depôt would be in charge of a storekeeper, who would have specimens for fitting and practice in use. Bleaching powder could not be supplied in adequate quantities by the ordinary trade, and therefore special arrangements had to be made for laying in the enormous stocks that would be required.

Details of organisation had been put in the hands of local authorities, and the response had been extraordinarily good. They were being asked to appoint an individual or committee to go into local air-raid precautions for the area. County councils and county borough councils dealt with the smaller authorities within their area. A survey was made and the area subdivided, each subdivision being required to make its own plans for police and fire brigade services, rescue, decontamination, and medical parties, and air-raid wardens. The medical officer of health was usually put in charge of the medical arrangements. The medical plan was very similar to that adopted in the fighting services. Bearer parties were allotted to first-aid posts, and were to be provided by the big voluntary organisations, which had undertaken to find personnel and give training. A party was to consist of four men, with a stretcher, four first-aid pouches, and a first-aid haversack. They should be based on depôts, providing a 24-hour service in relays, somewhere near the posts they had to serve. The post itself should be reserved wholly for the treatment of casualties. Rural areas had skeleton arrangements only and relied on mobile reserves provided by the nearest urban area. Every urban district was to work into its plans a definite rural area in its neighbourhood. To avoid confusion between decontamination of persons and of objects, the term "decontamination" had been dropped from the title of first-aid posts, but that was where all individuals were to go. Mustard gas called for very urgent cleansing. Ideally there should be a decontamination centre in every house. In practice they aimed at getting every potential patient within a mile of help—i.e., not more than twenty minutes away from a first-aid post. There had therefore to be large numbers of first-aid posts and, cutting it as fine as possible, there must be 8000 square feet of floor space for each. Inside it there must be two divisions for the sexes; and division between those who were contaminated with mustard gas and those who were not. Doubtful cases would have to be placed at the discretion of the post.

Working with these organisations would be ambulance transport, and here improvisation would have to come into play. A fitment had been made to carry four stretchers in a tradesman's 10–15 cwt. van. Casualty clearing hospitals must be capable of giving full hospital attention, including surgical emergency service, but casualties could not be retained in areas liable to repeated attack. A plan must be made to remove cases to base hospitals further away. There was no other distinction between the casualty clearing and base hospital; they gave the same service. The base hospitals could be situated anywhere within reach. At present, ideas were concerned with short-range evacuation, but it might in time be necessary to consider a train ambulance system in some parts. Hospitals could not be improvised within 48 hours, and the service must be capable of being brought into being in that time. Staffing the hospitals called for a good deal of thought and coördination. The total numbers would be enormous, and cordial coöperation from the population was essential to success. Efforts were being made to obtain and train volunteers. The work was going quietly ahead but required a good deal of stimulation. The work had not so far been carried further than the local authorities. Now was the time to embark on appeal to the public. The whole thing was a network, and it must be a network in close coöperation.

The medical profession were being instructed specially in anti-gas work. The one very serious thing to be anticipated was panic and loss of national morale. Doctors were such a stay and prop to morale that their training was of the greatest importance. Sixteen specially trained whole-time doctors were now carrying on courses of instruction to their fellow practitioners, to medical students, and to nurses. Over 500 students had been trained since October, and about 400 doctors and 400 nurses; the scheme was working very satisfactorily.

Colonel E. M. Cowell said that one in fifty of the population were needed as medical personnel; including non-medical services, one in thirty would be needed. Germany already had an air defence corps of one in six. Ultimately the whole population would have to learn something about it. Without the coöperation of doctors, the work could not go far.

He showed a film illustrating first-aid surgical work in protective clothing; a strong man could only work in this clothing for an hour and a half to two hours. It was essential to have fit men, and soldiers might be called on. All battalions were being given some training.

QUESTIONS ANSWERED

In reply to a question Major Blackmore said that all contaminated cases would be dealt with at the first-aid post. The suggestion had been made that the public should cleanse themselves, but it was doubtful whether people would do it properly, and without risk to others, although the treatment advocated was simple washing. It had been stated in print that if an individual was near home, he should go there.

Mr. Graeme Talbot said that the eyes must be washed at once with plain water, but a patent preparation was advertised in the Government handbook. He thought it a pity that the advertisement should appear, and also felt that an eyebath would prove less efficient than a douche.—Major Blackmore agreed, and said that arrangements had been made for eye douching in the first-aid posts. He did not think people were going to do anything for themselves really; he thought they would go to the posts.

Group Captain S. Marshall asked if first-aid posts were to be protected against missiles and gas, and whether arrangements were to be made for reclothing decontaminated personnel.—Major Blackmore replied that the posts would be structurally protected as far as possible and should certainly be gas-proofed. The question of clothing had not been wholly decided, but fresh clothing would be provided, and efforts would be made to de-gas the old clothing, if that proved practicable. He did not know whether a standard garment would be manufactured, or whether local shops would be drawn on; this subject was being considered at the moment. Asked if alternative water-supply would be provided for first-aid posts, he answered in the negative; the water-supply problem was being investigated by certain local authorities, but such great cost was involved that the problem seemed insoluble—at any rate by central action.

Dr. Cecile Booysen asked for more information about the research behind the recommendations. For example, a gas-proof room prepared carefully according to the instructions had proven quite inadequate when tested in a laboratory.—Major Blackmore replied that the experiments conducted had been performed on discarded telephone kiosks, which the students were required to gas-proof. Traps were laid to catch out the students and then a gas cloud was allowed to drift over the kiosks with test papers inside. It was possible to keep out enough of the gas to keep the air inside respirable and non-toxic, though elaborate chemical tests might reveal traces of gas. Further, the people inside would have gas masks as a second line of defence. People were urged to make their own gas-proof rooms in order to comply with the fundamental principle in air raids of dispersal for safety. The vast majority of casualties, moreover, occurred in the open.

Dr. H. Joules asked if there was any defence for children under ten; and how many aeroplanes were to be anticipated and the area they were likely to cover.—Major Blackmore said little could be done for the child under five; from that age on they could be persuaded to wear a respirator, but the resistance to breathing, though reduced to 2½ inches of water, was enough to inhibit small children. A pram cover had been designed to convert the pram into a gas-proof room and this worked excellently. The objections were the difficulty of manipulating a perambulator and the fact that only 25 per cent. of the population of the East End of London possessed perambulators. A gas-proof box had been produced for children up to two, and worked well, but the babies objected strongly and yelled. The sight of a mottled face through a yellow celluloid window always convinced the mother that the child was being suffocated, and she took it out. Further possibilities were being explored. One of the difficulties was to find personnel for experiment.

Asked if cellars were best for gas-proofed rooms, Major Blackmore replied that they were, but the proofing must be very complete as most of the gases were heavy; and also there must be an alternative exit; and all fear of flooding must be eliminated. He personally preferred the first floor.

Mr. C. Hope Carlton asked what attempts would be made to deal with ground contamination in first-aid posts. Hundreds of people would bring gas in with them. He also asked about evacuation, reminding members of the intense concentration of people at such centres, and whether they would be evacuated centrally or peripherally. Could the children be moved into the country at the earliest warning?—Major Blackmore answered that the amount carried on boots would not be very great: he did not think the problem very serious, and any way the personnel would be in protective clothing and gas masks. Patients would enter through two gas locks. Decontamination squads were part of the organisation. Evacuation was a very serious problem; for the population generally it was to be encouraged on a voluntary basis, and organised for those who wanted to go. Schemes were being considered. Cases were to be collected to casualty clearing hospitals and then taken thence to outside hospitals by external ambulance convoy. The view held was that vapour contamination could be ignored for casualties being carried through the streets.

Dr. Mavis Gunther asked how mustard gas would be dealt with in the water used for decontamination.—Major Blackmore replied that mustard gas dissolves very very slowly and slightly, and hydrolysis would deal with it. A mustard strewn street would be dealt with by hosing down, driving the mustard into the drains by friction. This water had to be dealt with, in gutters, traps, and sewers, by decontamination squads.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY

A meeting of this society held at Sheffield on Nov. 27th with Dr. Ruth Nicholson, the president, in the chair, was devoted to a discussion on the

Indications for Cæsarean Section

At a previous meeting of the society Prof. A. M. Claye (Leeds) had stated that until fairly recently the only indications were contracted pelvis and obstruction of labour by tumours. Objections to the classical operation were: (1) its high mortality (1·5 per cent. at the best time, 9·4 per cent. late in labour, and 26·5 per cent. after attempts at delivery); (2) the risk that the scar might rupture in a subsequent vaginal delivery; and (3) the risk of general peritonitis. The lower-segment operation had the advantage of a lower mortality (1·6 per cent. in 559 cases at the Leeds Maternity Hospital) and a much less dangerous scar. In view of the good results obtained there seemed to be no reason for confining the operation to one cause of delay—i.e., contracted pelvis—and Prof. Claye thought it might be used occasionally in cases of primary inertia, including colicky uterus, or cases of occipito-posterior presentation with poor flexion where mother and child might be in danger long before full dilatation of the cervix. In such circumstances section carried less risk than trachelotomy or manual dilatation. He had also performed the lower-segment operation in patients with fibroids, heart disease, scarred cervix, and carcinoma of the cervix, and in cases of brow presentation. In a series of classical sections the indications, other than contracted pelvis, were placenta prævia, fibroids, toxæmia, accidental hæmorrhage, repeated transverse lies, previous complete tear, previous puerperal insanity, breech presentation in an elderly primigravida, and repeated prolapse of the cord. It was only rarely, however, that some of these indications justified Cæsarean section; in placenta prævia, for example, it should be considered if the patient is a primipara in good condition, the child being alive and well developed and the placenta central. It was often argued, said Prof. Claye, that the obstetric art must be preserved, and that if all difficulties were treated by Cæsarean section, it would disappear. While agreeing that the operation should be kept for carefully selected cases he thought that the primary object of obstetricians should not be the preservation of the obstetric art but the welfare of mother and child.

Mr. William Gough (Leeds) deplored the growing tendency to treat any obstetric difficulty by Cæsarean section as a first line when it should really be a last line. The operation, though easy, was by no means trivial and a low maternal mortality figure was not the sole criterion of success. There was always the possibility of subsequent disability from, for example, adhesions, herniæ, or fistulæ. He felt that section could rarely be justified as a method of treating primary inertia though no doubt every obstetrician could look back on cases where he had eventually wished that he had performed it. It was impossible to foresee how any particular case would finally turn out, but as a rule they did well without interference. Where fibroids were present it was advisable to wait until the patient was well on in labour, for the fibroids often went up out of the way as the lower segment was taken up. Mr. Gough did not himself perform Cæsarean section in frank breech cases unless the pelvis was contracted. He used the operation in picked cases of placenta prævia but did not approve of it as a routine. He rarely adopted it as a method of delivery in heart disease.

The President pointed out that the number of sections for contracted pelvis is being reduced by greater use of trial labour, followed if necessary by the comparatively safe lower-segment operation. The elderly primigravida with a large child might profit by section.

Mr. Alfred Gough (Leeds) said that in a given case there was often more than one indication for section. For example a primipara of 44, a fortnight past her calculated date, with a large child, might have a slightly diminished conjugate and rigidity of the soft parts. None of these factors in itself would justify section, but taking them all into consideration one would not hesitate to operate. He did not regard uterine inertia alone as a sufficient indication, but occasionally the presence of other abnormalities such as disproportion, toxæmia, or placenta prævia would turn the scale.

Dr. C. H. Walsh (Liverpool) preferred the lower-segment operation unless large veins were present. He thought that Cæsarean section was rarely indicated in heart disease.

Mr. St. George Wilson (Liverpool) maintained that the usual approach to trial labour, as if it depended on anatomical considerations, was quite wrong. The test was really a physiological one. He also thought that the term "uterine inertia" should be replaced by the more expressive "disordered uterine action."

Mr. P. Malpas (Liverpool) saw little value in a discussion of massed results of Cæsarean section. Every obstetric case presented individual risks and problems and the selection of Cæsarean section as the method of delivery must be based on a consideration of the dangers and results of all the other methods available in the particular case—natural forces, forceps, version, embryotomy. The lower-segment operation, while minimising the incidence of puerperal infection, did not confer absolute immunity against peritonitis, and drainage should sometimes be employed.

Mr. C. M. Marshall (Liverpool) said it was now about a hundred years since Baudelocque had expressed the opinion that Cæsarean section was being performed much too frequently. Almost every authoritative statement since that time had been prefaced by similar remarks. It was clear that modern improvements in the operation were greatly increasing its safety, and it was only natural that a demand should develop for its wider application. He thought it would be safer to explore all the possible ways in which the technique could be improved. He had now carried out the lower-segment operation in 170 instances without a death. Spinal anæsthesia, though its risks were higher in this than in other pelvic operations, endangered the life of the mother much less than general anæsthesia. In all severely ill women, whose reactions to lumbar anæsthesia were uncertain, he now employed local anæsthesia. The outstanding results recently published by E. F. Daily from the Chicago Lying-in Hospital clearly showed the advantage of this latter method. Speaking of his own technique in applying the lower-segment in placenta prævia Mr. Marshall said that after the abdomen had been opened, the presentation was converted to a breech. A small transverse incision was then made in the lower segment, and a leg was pulled through. Traction on the leg was kept up while the uterine incision was being extended, and in this way complete control of hæmorrhage could be obtained. If the breech could not be made to present and the initial small incision involved the placental site, the wound should be quickly extended with the index-fingers, the hand inserted, and a leg secured.

Dr. E. A. Gerrard (Manchester) referred to Banister's contention that only half the women who have had a Cæsarean section become pregnant later. He thought that this point was all too frequently overlooked.

Prof. Claye, in reply, said he thought Cæsarean section the right treatment for primary inertia or an occipito-posterior position only in the rare cases where there was maternal or fœtal distress and a partially dilated cervix. He used the term "inertia" of any cases with inadequate pains in which no other cause of delay was evident.

MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY

At a meeting of this society held on Dec. 10th Prof. Millais Culpin read a paper on

Personality and Neurosis

He questioned the suitability of his title, as he would limit the word "neurosis" to indicate an interference with the physiological function of nerve tissue. This would exclude such phrases as "obsessional neurosis." The conditions under consideration were really psychoses and could be separated from those conditions that typically end in certification by using the phrases "minor psychosis" and "major psychosis." Beginning with the investigation of telegraphists' cramp, he had passed on to the examination of over a thousand people actually at work and had found that amongst them a proportion of 1·4–8 per cent. were suffering from nervous symptoms of such a degree as would demand treatment. He made a distinction, therefore, between nervous symptoms and nervous disability, for all these people were at work. He gave figures showing the relation between nervous symptoms and other reactions such as efficiency at work, social adaptability, sensitivity to noise, and sickness absence. He stressed the need for instruction in the method of psychological examination, which could be taught just like any other clinical method. He then described certain classes or types that could be commonly recognised by the use of the method of examination that he himself taught.

PATHOLOGICAL SOCIETY OF MANCHESTER

At a meeting of this society on Dec. 9th, with Dr. T. H. Oliver, the president, in the chair, an *address on*

Influenza

was given by Dr. R. W. Fairbrother. He said that the recent claims that influenza is primarily a virus disease are of such fundamental importance that it is necessary not only to examine them in detail but also to consider their probable significance. Influenza is a condition which may manifest itself in diverse forms; the most satisfactory classification is into three main types—pandemic, epidemic, and sporadic. The last is a vague group which undoubtedly embraces cases other than true influenza. Evidence supporting the virus theory is: (1) the isolation of the virus only from cases of epidemic influenza, the viruses isolated from various parts of the world—London, America, Australia, and Russia—being immunologically identical; and (2) the presence of antiviral bodies in human sera as demonstrated by neutralisation and complement fixation. A large percentage (50–60) of the normal adult population of Manchester possesses antibodies to a reasonable titre, and this suggests previous infection with the virus. The titre given by the serum of convalescents tends to be slightly higher than that given by normals. Antibodies against the virus of swine influenza are also present. Available information suggests that the swine virus is probably the human virus modified by prolonged propagation in swine. It is possible that the wide distribution of antibodies in the population may account for the absence of epidemic influenza from the Manchester district in the past few years.

Attempts have been made, said Dr. Fairbrother, to utilise the living virus as a prophylactic agent; it is too early to assess its value in this respect, but it is interesting to note that on intramuscular injection of the living virus no discomfort is experienced. An antiserum has been prepared in the horse, but while this contains a relatively high antibody titre its value as a therapeutic agent in human influenza is doubtful. Thus the results so far obtained have no immediate practical value and while great progress has been made much remains to be done.

REVIEWS AND NOTICES OF BOOKS

Medical Aspects of Crime

By W. Norwood East, M.D., F.R.C.P. Lond., H.M. Commissioner of Prisons; Lecturer on Crime and Insanity, Maudsley Hospital (London University). London: J. and A. Churchill Ltd. 1936. Pp. 437. 18*s.*

Collected here from various sources these essays constitute not only the "accumulated facts and impressions, and the opinions based on experience" gained during the past thirty-six years, which the author would share usefully with others, not only "the stepping stones over which he passed" in arriving at his present position, but a definite philosophical outlook which Dr. East intimates should characterise the students of delinquency and all those whose common aim is "the pursuit of truth as servants of justice."

Manifold are the complexities of abnormal conduct, and many are the approaches to the treatment of crime; theories on the subject are plentiful. Dr. East is not averse to theories, but he fain would have them hitched stoutly to facts; he recognises the joys of psychological balloonery, and would be ready to admit that there are points of interest in the mental stratosphere, but he would have us remember always that such activities, however pleasant and exciting, are useless unless the aeronaut returns safely to earth. "We must accept the fact," he contends, "that we may learn much about the psychological factors associated with criminal conduct and yet fail to help the criminal." More characteristic, however, than his insistence on relating suppositions to facts and theories to practice is his continual demand for "an impartial exploration by all the means at our disposal, unencumbered by unquestioning acceptance or obstinate rejection of any particular theory, whether this be psychological, physiological, medical or sociological." The exploration must be comprehensive, complete; in the case of the individual, "all the facts connected with a crime, as well as the past history and present condition of the offender, must be considered before conduct can be regarded as abnormal and outside the limits of the ordinary variations of persons of the same class and upbringing when subjected to similar circumstances or temptations"; with respect to treatment, "the problems are complex: psychiatry and psychology throw much light upon them. But other methods of approach are important also, notably the sociological, biological, anthropological and eugenic"—all must be systematically investigated; inasmuch as the offender is a member of society, "it is often necessary for the law to consider the interests of the public as well as of the offender, and moral and social obligations must be upheld if civilisation is to endure." Constantly he reminds us not to confuse the part with the whole, and that each problem must be viewed in its entirety if understanding is to be achieved.

Twenty-five years ago in introducing a discussion on vitalism at a meeting of the Pathological Society of Manchester, Dr. Haldane also instituted a plea for the study of the organism as a whole contending that in doing so "we perceive the continuity and connection which are present in the form, properties, and activities of the living being, and not simply the matter and energy which pass through it or exist in it. Similarly, also, we look at the surrounding environment as part of the whole, and it is in a sense true to say that an organism by its selective and other influence makes its own environment. . . . It is, further, insufficient to look at the organism as an individual merely. This is incomplete without reference to the stock. The individual dies and disappears, while the stock remains. . . . As conscious individuals men and animals are, it is true, much more than mere organisms, but this simple conception of the organism enables us to deal with all the facts belonging properly to biology." In reaffirming their faith the vitalists had discovered Hegel and with them Dr. East, too, would have us look upon the criminal manifestations of life as a whole—the individual and his environment, his present, his past, and his future as one and indivisible—and it is this holistic attitude towards crime that is emphasised most seriously in these essays.

A Textbook of Histology

Upon an Embryological Basis. Fifth edition of Lewis and Stöhr. By J. Lewis Bremer, M.D., Hersey Professor of Anatomy, Harvard University. London: H. K. Lewis and Co., Ltd. 1936. Pp. 580. 27*s.* 6*d.*

Medical students will find this book a valuable possession, for it not only provides an up-to-date guide to the microscopic examination of adult tissues and organs, but it also describes their development. And although the volume is packed with information it is easy to read. Spermatogenesis, oögenesis, and the fertilisation of the ovum are described; then by means of figures and a few pages of text a general idea of the development of body-form is conveyed, and the relations of the germ layers sketched, thus giving a background in the mind of the reader for the account of the histogenesis of each tissue. A short account of the development of each organ precedes the description of its microscopic structure when fully formed. Many references are given to original papers without impeding the text; and where the observations of early workers are still illuminating they are recorded. A paragraph on p. 177 notes the contributions made, in order of time, by Fabricius, Vesalius, Harvey, Malpighi, and Leeuwenhoek to our knowledge of the blood vascular system. A paragraph on p. 439 records the indebtedness of modern histologists of the ovary to Fallopius, de Graaf, and von Baer. In dealing with controversial subjects—e.g., the development of the blood and the character of the alveolar walls in the lung—the author has outlined the principal views now held and given the reference to his authorities. There are 455 illustrations.

Preventive Medicine

Fifth edition, reset. By MARK F. BOYD, M.D., M.S., C.P.H., Member of the Regular Field Staff, International Health Division of the Rockefeller Foundation. London: W. B. Saunders Co., Ltd. 1936. Pp. 561. 20*s.*

THOUGH written from an American standpoint for American practice, Boyd's "Preventive Medicine" makes an appeal to English epidemiologists, who are poorly supplied by writers of their own nationality with text-books on practical preventive medicine. The book is divided into eight sections, of unequal length and merit. More than half is devoted to diseases due to invading micro-organisms, and this section, with the short introduction, gives an excellent exposition of modern knowledge and practice. Dr. Boyd wrote his book for the practising health officer, so he deals little with contentious theory and much with the application of established principles. In it the health officer already equipped with some knowledge of epidemiology will find exactly what he wants to guide him in his work. Some dogmatism may be expected and excused in such a book, but it is unfortunate that scarlet fever is treated as a specific infection attributable to a specific form of streptococcus (*Strep. scarlatinæ*), and streptococcal sore-throat as an independent infection due to a different strain of streptococcus. This was the original conception of the Dicks and of Dochez, but it was never generally accepted, and recent researches have shown it to be untenable. In the chapter on plague, we read "Infection appears to reside primarily in the brown or Norway rat, from which it spreads to the black rat." This should be the other way about; the history of human plague is dominated by the black rat and its tropical rat flea (*X. cheopis*). The chapter on ringworm will puzzle English readers, for the commonest form with us (microsporon) is not mentioned at all, and the infections to which the chapter is devoted are little known in England. On the whole this gives a clear and accurate account of modern conceptions of infectious disease.

An Ethiopian Diary

By J. W. S. MACFIE. Liverpool: University Press; London: Hodder and Stoughton Ltd. 1936. Pp. 144. 26 photos and maps. 5*s.*

THIS is a plain account of the work of the British Ambulance Service in Abyssinia, as seen by its second in command. The author served with the unit from the time it left England until he was evacuated through illness immediately before the occupation of Addis Ababa by the Italians and the death of Dr. Melly. Dr. Macfie was selected primarily for his experience of tropical diseases; but when the ambulance, originally destined to serve on the Ogaden front, was sent into northern Ethiopia, he served chiefly as anæsthetist and physician to out-patients. His narrative gains rather than loses through its objective style, and the indictment of the Italians is made the more damning by the absence of comment. The barbarity of the bombing of the hospital camp on the Ashaughi Plain is reinforced by one of the many excellent photographs which shows that it must have been deliberate, while his eye-witness description of the destruction, after much bombing and machine-gunning, of the two Red Cross planes which had come to evacuate the wounded Dutch doctor, van Schelven, almost justifies the bitter gibe—"Like a red rag to a bull—like a red cross to an Italian." The author is not blind to the ingratitude, arrogance, inefficiency, and barbarity—the Emperor always excepted—of the Abyssinians, but his account of the casualties from mustard gas and of the wounded mangled again in hospital, makes one feel that no "civilising" end could justify such means.

The book is written for the general public, and the medical reader, in search of medical details, would be glad of the reference implied in "elsewhere I have written about the medical aspect of our work." Nevertheless, it is of absorbing interest and when strongly moved the author proves that he can write finely, as in his description of the Abyssinian army on the march at night picked out in the lorries' headlights, and in his tribute to his C.O., John Melly, and the "rounded perfection of his short career." In an episode of history in which we as a nation have little to be proud, the work of the British Ambulance Unit in Ethiopia was an exception.

The Marks of Examiners

By Sir PHILIP HARTOG, K.B.E., C.I.E., and E. C. RHODES, D.Sc., Reader in Statistics in the University of London, with a memorandum by CYRIL BURT, M.A., D.Sc. London: Macmillan and Co., Ltd. 1936. Pp. 344. 8*s.* 6*d.*

AT the end of last year a pamphlet entitled An Examination of Examinations was published by Sir Philip Hartog and Dr. Rhodes, under the auspices of the International Institute Examinations Enquiry Committee. It gave in brief the outcome of investigations into the problems of the marking of examination papers—the consistency or inconsistency with which one examiner allotted marks to the same piece of work at different times, and the degree of variability as shown between one examiner and another in marking the same scripts. This pamphlet, reviewed at some length in THE LANCET of Dec. 7th, 1935, aroused much interest and is now in its fourth impression. The results of extensive inquiries, however, clearly cannot be given and fully analysed in the compass of 81 pages. To present the data of the eleven investigations in full the present work has been published. In addition it contains a detailed discussion by Dr. Rhodes and Prof. Cyril Burt of the statistical and psychological problems involved. Both envisage and analyse in somewhat different ways the fundamental causes which lead different examiners to assign differing, and, as the experiments show, sometimes widely differing, marks to the same piece of work, and seek to determine from the data the "ideal mark" for each script. It is perhaps legitimate to warn the non-mathematically minded student that in this search for truth there is little, from his point of view, to choose between the approach of the mathematical statistician and that of the psychologist. He will find them equally distressing.

Sir Philip Hartog contributes a short section on some special points of difficulty in connexion with school certificate examinations, and he and Dr. Rhodes reply to some of the criticisms which were levelled against the conclusions of their earlier pamphlet. The total is a book of real worth and interest.

KENSINGTON MEDICAL SOCIETY.—A clinical meeting of this society will be held at St. Mary Abbots Hospital, Marloes-road, W., on Friday, Dec. 18th, at 8.30 P.M. Particulars from the hon. secretary, Dr. B. Barling, who may be addressed at the hospital.

THE LANCET

LONDON: SATURDAY, DECEMBER 19, 1936

STABILITY

On the manner in which the people of our country and of the dominions overseas sustained the threat of a fundamental shock to the Constitution, noble congratulations have been received from other Powers. To dwell upon our good fortune would savour much of national pride. Yet national pride is just. That the days of deep anxiety had their physical as well as mental influence cannot be doubted, but that influence, which might have had sad sequels, was mitigated throughout by the unanimous view that the anxious situation was being met with justice. It was felt by all—or practically all—that while action had to be taken swiftly, no course, whether indicated by allegiance, sympathy, law, or precedent, had been left unexamined before the King's momentous decision was received. "I doubt whether under any other system of government, a crisis of this gravity could be solved with as little hurt to the body politic as under our system of constitutional monarchy." These were the words in the House of Commons of Sir Archibald Sinclair, speaking as a party leader, but speaking in fact with the voice of the nation.

Members of our ruling House have manifested in unceasing and untiring manner their interest in the promotion of health, as the fount of happiness and prosperity; and the well-being of his humbler subjects lay especially near to the heart of Edward VIII. We are convinced that in his successor, who comes over us with universal acclaim, the same warm-hearted impulses will be found.

CHANGING PRIVATE PRACTICE

In our correspondence columns this week Dr. Alfred Cox describes a new scheme of medical practice which is to be set in motion in the London area in the New Year. Under this scheme families with an income between £250 and £550 will be able, by payment in health of a graduated yearly subscription, to get the services of their own doctor in illness without having to worry about his bill. The London Public Medical Service, which is initiating this scheme as an extension of the existing service, is satisfied that there is a firm public demand for it, basing its belief on the success of the present scheme for medical attendance on the dependants of insured persons. The extension has secured the sanction of the B.M.A. council on the condition that any particular unit of the metropolitan area is to be excluded from it if the practitioners in that area should so decide and rules have been laid down for ensuring this liberty of contracting out. It is understood that of the 1100 members of the L.P.M.S. 400 have expressed willingness to take part in the extended scheme, and it is not known, although it may fairly be surmised, what is the view in general of the 6000 practitioners in the metropolitan area who are likely to be affected.

There are now in the country as a whole 53 schemes of public medical service with a membership of over 404,000 subscribers, and during the last four years the numbers have more than doubled. While this is only a small fraction of the population to be provided for, it is admittedly a good start, and it is at the start that the inertia is greatest. The schemes vary in detail, both as to what is provided and what is paid for the provision. It is worthy of note that in Swansea, Ipswich, and Leicester the capitation fee for the service is higher than that paid under the national health insurance scheme. Public medical services then have been established and, for better or for worse, they have come to stay. The oldest and so far the most successful schemes were those devised to get rid of cheap contract practice. The insurance scheme did this in 1911 for the wage-earners and it was the anticipation of the extension of the scheme to the dependants of insured persons that gave the impetus to public medical services. Whether the extension of the scheme to higher income limits will prove as salutary remains to be seen. The income limit of £550 proposed in the London extension scheme will, it is safe to say, swallow up the whole of most private practices. Would the result be the disappearance of private practice as it is known to-day? It would be a matter for keen regret if the intimate relationship which exists between patient and family doctor were to be injured. The champions of public medical service claim that in a service which is properly administered the relationship becomes more intimate and practical, for the absence of financial hesitancy encourages the more frequent call on the practitioner's services. There is no doubt that we must be prepared for great changes in private practice and the methods in which medical services are made available to all classes of society. It would be well if the change to an ideal system were a gentle process of evolution avoiding any open conflict between the voluntary and the compulsory systems. Obviously the national insurance scheme could not have been launched without an Act of Parliament. The public medical services so far arranged follow the lines of the national scheme in allowing free choice of doctor and patient, with greater freedom in the administration of the scheme itself because this has remained in the hands of the practitioners.

The success of any voluntary scheme of this kind depends on the degree of coöperation between the doctors who work it and the voluntary subscribers. It is this coöperation which is so difficult to secure. Perhaps the principles of insurance are becoming better understood by the people generally. The London extension scheme may well meet with more sympathy and understanding from a class of subscribers whose more substantial economic position brings with it an added feeling of responsibility. It is an experiment whose result will be watched with keen interest. Alongside the interests of the public we are justified in considering the best interests of the medical profession, for it is only the same view from another angle. It is of vital importance that the conditions under which practitioners work should be such as to allow of the exercise of their highest powers and abilities; to ensure, that is, that the best possible service is given. Does the public medical service give this guarantee? No complete service can be rendered in surgeries and consulting rooms; schemes of wider range may lead of necessity to the work being performed at specially appointed health centres. Sir FARQUHAR BUZZARD last summer foreshadowed a development along such lines. New schemes for public medical service must be so flexible that they can be adapted to any larger scheme for provision of specialists, consultants, and hospital services in conjunction with institutions for research and development in medical knowledge and training. These things cannot be hurried; progress in organisation of medical work must be slow. All the great results enumerated in the recent report of the Ministry of Health have been the result of years of growth and development. Dr. Cox's scheme contains, we are satisfied, the germ of progress if the practitioners who take part in it are prepared to coöperate in all public health activities and to take their share in medical services rendered to the whole population.

ANTITOXIN IN DIPHTHERIA

DIPHTHERIA is a preventable disease and the practice of active immunisation continues to make progress in this country. But until protection of the pre-school child is carried out upon an adequate scale no appreciable decline in incidence among the community at large can be expected. An annual toll of children's lives will continue to be taken, its magnitude subject only to such natural factors as the variation from year to year in the prevalence of highly toxic strains of the *Corynebacterium diphtheriæ*, to such preventive measures as the sanitary authorities can bring to bear, and to the promptness and adequacy of specific therapy. Having regard to the downward trend of mortality from infectious diseases in general during the forty years or so that antitoxin has been employed it would be unwarrantable to claim for this agent the whole credit for the decline in the fatality-rate of diphtheria to an eighth or tenth of what it was. That it has been by far the most important factor few impartial observers are prepared to gainsay. Even so, the present fatality-rate of some 4 to 5 per cent. is too high and might by the right use of antitoxin be still further reduced. The main cause of fatality is obviously inherent in the character of the disease itself; the stealthy invasion and the rapid but equally stealthy advance result, all too often, in the child receiving medical attention only when he has reached death's door. On the other hand, there is unfortunately no doubt that many lives would be saved were the practitioner more often to trust to his clinical judgment, as perforce he must do in many other illnesses, and give his patient the benefit that prompt antitoxin therapy affords. The swab is a good servant but a bad master. But, as Sir FREDERICK MENZIES remarks in the foreword to a report[1] just published, antitoxin is not always used in the manner and dosage calculated to give the best results, and even in isolation hospitals there is diversity of opinion and practice. The report which has been prepared by the medical superintendents of several of the large fever hospitals in London is an attempt to establish criteria primarily for the guidance of the medical officers in the L.C.C. hospitals.

It is of the first importance to remember that the essential function of antitoxin is to confer passive immunity; it prevents further damage by toxin but cannot repair damage already done. Toxin is produced continuously at the site of the false membrane and disseminated by the blood stream to all the tissues of the body to which, within a few hours of its liberation, it becomes firmly fixed. Thus the amount actually in circulation at any moment is never great. Antitoxin is capable of absorbing this circulating toxin, possibly also the toxin still only loosely attached to the tissues. It is powerless, however massive the dose, against toxin firmly combined. If the process of toxin liberation and combination is sufficiently intense, widespread, and prolonged, it results in the death of the patient in a few days from acute toxic myocarditis; or, he may survive the acute phase only to experience in the later weeks one or several of the so-called post-diphtheritic complications, the foundations of which were laid in the early days of the illness. Exceptionally, where toxin production is slight, or basal immunity high, uneventful recovery may occur without the assistance of antitoxin—a result which is virtually certain if at the earliest moment, when toxin fixation is minimal, antitoxin is introduced in such an amount as to ensure not alone the neutralisation of circulating toxin but of toxin still to be circulated from the patch of membrane within the ensuing few hours. It is clear that if the patient is already suffering gravely from the effects of toxæmia an immediate concentration of antitoxin in the blood becomes imperative; no further damage can be risked. This requires the intravenous route, if mechanically practicable and not otherwise contra-indicated. Where, on the other hand, the necessity for speedy absorption is less urgent the intramuscular route suffices. Under exceptional circumstances only should intraperitoneal injection replace intravenous, or subcutaneous the intramuscular route. The route of injection depends primarily upon the clinical severity of the case, and the main indications of clinical severity are enumerated in the report (pp. 6–7); but whatever the route the *aim* should be to give a single rather than divided doses, since the same unitage given in a single dose secures a higher and earlier concentration of antitoxin in the blood. If it becomes obvious that the first dose was insufficient, a second and possibly larger dose should be given, preferably intravenously, in order to make up so far as possible for time lost. In a patient treated with an adequate amount of antitoxin by the appropriate route a cessation of the advance of the disease should be apparent within 12 hours of intravenous injection or 12 to 24 hours of intramuscular injection. Before these periods have elapsed the temptation to give a further dose should be resisted.

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[1] The Dosage of Antitoxin in Diphtheria: Report of a Departmental Committee. London County Council. P. S. King and Son, Ltd. No. 3225. 6*d*.

There is no general agreement on the size of the therapeutic doses of antitoxin in the various types of diphtheria classified in the report. Obviously no rigid scale can be laid down, since a really satisfactory classification of diphtheria in terms of clinical severity is almost impossible. The report suggests "a sufficiently elastic scale of dosage to permit of its acceptance by as large a body of authoritative opinion as possible." The assessment suggested is based upon the anatomical site of membrane formation and the degree of toxæmia ordinarily associated with the site involved. These two factors permit of an approximate estimation of clinical severity as mild, moderate, and severe in each type and a further table suggests the dose and the route to be employed in cases which fall into each of these grades of clinical severity. The range of doses is from 2000 units intramuscularly to 100,000 units intravenously. The minimum dosage is indicated only where, as in hospital, constant supervision is possible. Where this is not possible the report commends the advice of the Ministry of Health (1922) that "it is seldom safe practice to rely on any dose which is less than 8000 units, whatever the age of the patient." Similarly, although rarely necessary, to exceed 100,000 units, it may occasionally be expedient to do so. The importance of the intravenous route is repeatedly stressed in the report and it is recommended that it should if possible be employed in any case in which it is decided that upwards of 20,000 units are necessary. The serum should always be in concentrated form, since its low protein content has secured a considerable reduction in the incidence and severity of serum reactions. On the other hand, its small bulk has facilitated the injection of large, sometimes unnecessarily large, doses of antitoxin. Such overdosage is not only wasteful of an expensive product but enhances the likelihood of serum reactions which otherwise might not occur were less protein introduced. Immediate and alarming serum reactions are nowadays of extreme rarity and the possibility of the occurrence should not deter the practitioner. Nevertheless it is advised, particularly if the intravenous route is proposed, that prior inquiry should be made as to a personal or family history of asthma or allied conditions, and of any previous injection of serum and the date thereof. Whether such a history is elicited or not, serum should never be injected by any route in any amount unless adrenaline (1 in 1000) is at hand, preferably in a syringe ready charged. At the first sign of reaction administration must be stopped and at least 5 minims of this solution injected subcutaneously. Whenever serum is given intravenously other methods of combating shock should be available. By whatever route, serum must always be injected slowly and at body temperature. The report advises the precautions which should be taken if there is a history of allergy or potential allergy. Briefly, these consist in fractioning and diluting the dose in normal saline and injecting subcutaneously, a route least likely to give rise to reactions, a first fraction followed at intervals by further fractions by the same route if the first injection elicited sensitivity.

The report conveys in concise form what may be accepted as approved practice in the antitoxin treatment of diphtheria, just as a previous departmental report[2] did the same for the clinical diagnosis of diphtheria. Intended primarily for the guidance of medical officers in the L.C.C. service, both reports should find a wider medical public.

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[2] Nomenclature of Diphtheritic Infections, 1936. London: P. S. King and Son, Ltd. No. 3161. 3*d*.

ANNOTATIONS

APTITUDE TESTS FOR MEDICAL STUDENTS

THE examiner, they say, is often a kind father and fond of animals. But his trade is unpopular and some would go so far as to prohibit it altogether. The arguments of these reformers, though previously derided, were suddenly strengthened a year ago by the "examination of examinations" described by Sir Philip Hartog and his colleagues.[1] This showed that even an experienced examiner often gives a different response to the same stimulus repeated after a year's interval: thus if he is asked to re-mark the same paper (having forgotten what he said before) his answer is often astonishingly different. In last week's issue of the *British Medical Journal* Dr. Gilbert Millar tells a somewhat different story, emphasising the consistency of the results obtained in the Edinburgh University medical examinations: but those who have read the Hartog report will still be left wishing for more objective methods of testing knowledge and ability—methods that will leave candidates less at the mercy of human fallibility.

Our Scottish letter this week tells of preliminary attempts, also at Edinburgh, to apply vocational tests to the selection of medical students. Selection for training is the first point at which the ordinary kind of examination may fail, and it is here that the technique of the professional psychologist stands most immediate chance of being applied. In our own columns last summer Squadron-Leader R. H. Stanbridge[2] gave an interesting account of the use of such technique in the selection of aircraft apprentices in the Royal Air Force, and it is difficult not to believe that similar principles should be adopted in weeding out the less promising medical students. In the United States aptitude tests are, in fact, being employed experimentally on a large scale, and a description of them was given not long ago by C. R. Flack.[3] Since 1927, he says, when they were started at George Washington University, they have been modified and revised four times, but not very drastically. In its earliest form the test lasted an hour, and the time was occupied as follows. During the first ten minutes the candidate studied a diagram of the heart and great vessels and a paragraph about them. The next five minutes was spent studying a passage in medical literature. So much was by way of preparation. During the remaining 45 minutes, working as rapidly as possible, he took six tests: a scientific-vocabulary test of 40 items, a premedical information test of 100 items, a visual memory test of 20 items based on the diagram already studied, a memory test of 20 items in the paragraph, a comprehension and retention test of 20 items based on the medical passage already studied, and lastly, a 15-item test of his understanding of printed material. The predictive value of these tests or of their subsequent modifications, in so far as the success of any given candidate in the medical schools is concerned, is regarded as remarkable. Indeed, it is claimed that no other criteria are of comparable value. By 1929 some 70 medical schools were already coöperating in the scheme, and by 1931 the number of colleges and universities participating had risen to 547.

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[1] An Examination of Examinations. By Sir Philip Hartog and E. C. Rhodes, D.Sc. London. 1935. (See THE LANCET, 1935, ii., 1303.) The Marks of Examiners. By Sir Philip Hartog and E. C. Rhodes, with a memorandum by Cyril Burt, D.Sc. London. 1936. (Noticed on p. 1470.)

[2] THE LANCET, 1936, i., 1426.

Detail apart, it seems probable that tests on some such lines as these would be preferable to an ordinary entrance examination as a means of separating the sheep from the goats, or, to speak more accurately, the lambs from the kids. But what of the finished product? Will they enable us to select those candidates who will become not merely successful examinees but also sound practitioners? That is another question and, so far, an unanswerable one. To take up the challenge of the critics, it may well be that road-sense or clinical judgment may be acquired in larger measure than is commonly supposed. Mere slowness must not be confounded with unsoundness or incompetence and it is well to remember that although "the bed bug's got no wings at all, he gets there just the same." The tests described by Flack, with their emphasis on speed, are not likely to command general confidence, and the more comprehensive methods of choice employed by Stanbridge for his rather different purpose are distinctly more attractive, since they represent a weighing of the whole man and not merely of his mental accomplishments. This is what really matters, and it will matter still more when children are trained to pass intelligence and aptitude tests just as they are now trained to deceive the examiner. When so much hangs on the results no effort must be spared to devise tests and criteria that will truly serve their purpose.

A LIST OF OPTICIANS

Earlier in the month (Dec. 5th, p. 1362) we noticed the issue of new regulations designed to protect insured persons against the supply of inferior spectacles at an exorbitant price. The avowed object is thoroughly good but the initiative, it seems, came from sight-testing opticians who have found much of their insurance work passing into the hands of technically less qualified persons. An appeal to the Ministry of Health resulted in a draft of regulations by the Ministry and the N.H.I. joint committee which were submitted to the British Medical Association for its comment. The Association pointed out that the wording of the regulations as drafted not only recognised the merits of competent opticians as dispensers of prescriptions, but implied that they were capable of testing sight and detecting diseases of the eye. To give official recognition of this kind to sight-testing opticians would be to run counter to the view strongly expressed by the departmental committees of 1922 and 1927. It would in fact give them a sort of back-door entrance to ophthalmic medicine and encourage like encroachments into other branches. Backed by the recognition of the Ministry it would be logically possible for opticians to give ophthalmic certificates and conduct eye clinics for school-children. These implications of the proposed wording and its probable results were laid before the Ministry by a deputation which included Sir Farquhar Buzzard, Mr. Bishop Harman, Mr. H. L. Eason, Prof. J. A. Ryle, Prof. Grey Turner, Sir John Parsons, and Mr. J. D. M. Cardell. The outcome of their intervention may be seen in the amended phraseology of the present draft, which enjoins the approved societies to provide an applicant with information as to his right to obtain benefit—i.e., examination, other than by the arrangements made by the societies. This should result in every member being told on his first application for benefit that he is entitled to an examination by an ophthalmologist. In the past this has not always been done, and a healthy insistence on this rule by the Ministry would benefit everyone concerned. But whether a committee composed of approved society representatives and sight-testing opticians will admit dispensing opticians to the closed list remains to be seen. If they do not we hope that the highly influential deputation will again intervene.

HOSPITAL AMALGAMATION IN LIVERPOOL

On Nov. 27th a Bill for the amalgamation of the four Liverpool general hospitals—the Royal Infirmary, the David Lewis Northern Hospital, the Royal Southern Hospital, and the Stanley Hospital—was deposited at the Private Bill office of the House of Commons. A draft scheme for amalgamation was placed before the committees of the four hospitals in January of this year, and the Bill now deposited will be considered during the coming session of Parliament and may be placed on the statute book in the summer of 1937. It will be remembered that the amalgamation of the four general hospitals was one of the recommendations of the Liverpool Hospitals Commission which presented its report in January, 1935. The commission urged this amalgamation not only as an economy of effort and resources but as the necessary preliminary to a rebuilding programme which should concentrate all general hospital beds in one or two large hospitals. "We have been convinced," said the report, "by the evidence offered to us that the four general hospitals are all of them too small fully and economically to serve all the purposes of a great metropolitan general hospital. No one of them can permit to the fullest extent the deployment of the available medical skill on any particular case; no one of them can be quite completely equipped; no one of them can hope to provide the range of cases required for medical teaching and research." The Bill provides for administrative amalgamation, the effect of which will be to bring all four hospitals under one governing body, representative of the existing governing bodies. When this has been achieved considerable economies should be effected as part of the closer working of the four units, and the way will be open for extensive measures of coördination. A clause of the Bill describes one of the objects of the new "Liverpool United Hospital" in the following terms: "As soon as may be feasible the carrying on of all such work (i.e., the work of the existing hospitals) in new buildings on one site." The Bill thus contains a direct reference to the desirability of rebuilding on a single site. The commission suggested that a body should be formed to coördinate the policy of all the voluntary hospitals in Liverpool, and the Associated Voluntary Hospitals Board, which was the result of that suggestion, has been responsible for the promotion of the scheme for amalgamation, and is now considering the problems of rebuilding with the assistance of Mr. Herbert J. Rowse, F.R.I.B.A.

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[3] Jour. Amer. Med. Assoc., 1936, cvii., 61.

PERIARTERIAL SYMPATHECTOMY

THE repeated advocacy, by so distinguished a surgeon as Prof. Archibald Young, of the periarterial operation as an alternative to ganglionectomy in the treatment of various vascular diseases leads us to reconsider the evidence for its usefulness. An opening contribution[1] to a discussion at the Cairo Surgical Congress last January afforded him the opportunity for a restatement of his claims for the operation, and this he has now reprinted and circulated. After reviewing the history of periarterial sympathectomy, the physiological basis for the operation is discussed and the author concludes that the intramural nerve plexus of an artery is to be regarded as "a homogeneous structure, maintained at a certain degree of molecular tension which varies according to the receipt of nerve impulses from the central nervous system; . . . consequently disruption of the plexus is followed by the radiation of molecular shock to the distal branches of the vascular tree, with alteration of the physico-chemical reactions governing the most mobile part of the vascular tube." While this explanation may appeal to the physiologist, the surgeon may have his doubts whether the effects of the operation are explicable on physiological grounds, and will base his opinion upon clinical results. Prof. Young suggests that many surgeons are dissatisfied with the operation either because they have chosen cases which were unsuitable, or because, being unduly timid, they have failed to perform it in a sufficiently radical manner. The records of his own cases—notes of examination and after-history—are given in sufficient detail for others to judge how far the operation may be held responsible for the results achieved. The cases—which include chronic ulceration, delayed union of fractures, traumatic œdema, incipient gangrene, causalgia, thrombo-angiitis obliterans, and Raynaud's disease—are essentially similar to those described by other surgeons, and lead to the conclusion that periarterial neurectomy is of undoubted value in the treatment of indolent ulcers, in some cases of causalgia, and in alleviating the pain and limiting the extent of senile gangrene. Its limitations are seen in Prof. Young's cases of Raynaud's disease and thrombo-angiitis obliterans, in many of which ganglionectomy was subsequently required. Study of his clinical material case by case reveals the disappointing features which have led other surgeons to restrict the use of periarterial sympathectomy in the limbs to the relief of certain types of pain. That even this effect of the operation may be transitory is Prof. Young's personal experience. He has shown his own faith in periarterial neurectomy by having his left brachial artery stripped as one step in the treatment of chronic X ray dermatitis with ulceration. The operation relieved his pain, and grafts survived on ulcers when previous attempts at grafting had failed. A year later further grafting was undertaken after excision of a diseased area of skin; on this occasion the graft failed to take, and severe pain persisted throughout the long period which the ulcer took to heal.

CHRISTIE OF MUKDEN

THE death occurred on Dec. 2nd at his house in Edinburgh, after a short illness, of Dr. Dugald Christie, the well-known medical missionary, in his 81st year. As a boy he entered business in Glasgow; then, to use the old-fashioned phrase, he experienced "a call" and entered the medical profession with the intention of becoming a missionary. He qualified as L.R.C.P. Edin. and immediately took up a post with the Mukden Medical Mission. Here he remained for forty years, gaining the sobriquet "Christie of Mukden," and the fine work which he performed gained for him an unusual reputation among the Chinese official classes, as well as among his poor patients. None the less, his experiences were, at different times, dramatic and dangerous, as passages in an early autobiography show. In this he speaks of hostility and persecutions, "our houses and all our worldly goods burned, wars and deadly plague, tragic death among our ranks, partings with children sent away to the homeland—they have not been smooth years, but it has been worth our while." But he records the arrival of better things, writing: "We look back on almost incredible changes, and all who have shared in them feel that it has been a great thing to take part in the awakening of a nation, the regeneration of a great people. Hostility to foreigners is at an end. In all public emergencies, plague, war, famine, it is the missionaries, and of necessity specially the medical missionaries, that are looked to for advice and help." Assuredly Christie was a brave and optimistic man so to write, for during his sojourn at Mukden on three occasions it was found necessary to evacuate all foreign women and children in face of threatened risings. But he saw the foundation of a Chinese Medical College in Manchuria and two years ago the University of Edinburgh resolved to recognise the degrees of the Mukden Medical College. Christie who was created C.M.G. in 1911 was naturally the recipient of many Chinese honours, and in 1925 his Chinese friends erected a monument to him outside the Mukden College. He was a saint and a hero.

BENZEDRINE

BENZEDRINE is the name given to a synthetic substance (β-phenyl-isopropylamine) chemically akin to adrenaline and ephedrine and comparable with them in its pharmacological effects. It became known about three years ago, and has been widely recommended both by medical writers and by manufacturing chemists as a nasal application for its vasoconstrictor and shrinking effect on swollen nasal mucosa. That, however, is one of the least of its actions. It was found to wake animals from the narcotic sleep induced by barbitone, and Prinzmetal and Bloomberg[1] introduced it into the treatment of narcolepsy. Its blood-pressure-raising effect has been investigated in man by Myerson, Loman, and Dameshek,[2] who find that doses of the order of 20–50 mg. cause a rise of 8 to 68 mm. Hg in the systolic pressure with a much smaller rise in the diastolic pressure. If the drug is given subcutaneously the maximum rise is reached in about an hour or less, if by mouth in 1–2 hours, and the gradual return to normal may take up to 8 hours. These changes, however, are not responsible for its action on the brain, for the sleeplessness that it induces will long outlast the rise in blood pressure, and may be produced by doses too small to affect the blood pressure. It is suggested that the drug stimulates brain cells directly. Workers at the Maudsley Hospital have therefore tried to assess its effect on psychological processes. Peoples and Guttmann[3] described vividly how it causes a change of mood in mildly depressed patients, who become talkative, euphoric, even elated. Dr. Sargant and Dr. Blackburn, in our columns last week, described a carefully controlled experiment in which it was shown that the intellectual functions called into operation by "intelligence tests" were improved by the drug; the degree of improvement was not striking but they thought it statistically significant. Others have described in general terms how it removes the feeling of mental fatigue and gives a sense of confidence and clear-headedness. In another field, the radiologists[4] have found it useful for relaxing spasm in the gastro-intestinal musculature, facilitating, for example, the recognition of structural abnormalities of the duodenum. These various reports are certain to stimulate further investigation and clinical trial, and some of them are so striking as to encourage indiscriminate use without proper trial in controlled conditions. If benzedrine does all that is claimed for it already, it is pretty certain, if used repeatedly, to produce some undesirable effects as well. Myerson, Loman, and Dameshek mention a mysterious and astonishing polycythæmia—10 million red cells per c.mm.—produced in one or two patients by a daily dose of 40 mg. for ten days. The drug also impairs the appetite, and on p. 1461 Dr. Anderson and Dr. Scott report some alarming cardiovascular effects they have observed. These should be warning enough against its injudicious use, but it will be very interesting in due course to learn exactly what it is capable of doing within the limits of safety.

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[1] See THE LANCET, 1936, i., 119, 209.

[1] Jour. Amer. Med. Assoc., 1935, cv., 2051.

[2] Amer. Jour. Med. Sci., October, 1936, p. 560.

SIR HERBERT JACKSON

To those who knew him well perhaps the outstanding characteristics of Sir Herbert Jackson were his charming personality and his widespread interest in and knowledge of most branches of science. He took no active part in strictly medical research, but his work cannot be dissociated from it; his influence was significant. It is common knowledge that Sir Herbert observed the phenomena associated with the production of X rays some time before Röntgen described his epoch-making researches, but by some strange chance the significance of these observations somehow escaped him in spite of the fact that he had unrivalled knowledge of the subject of fluorescence. Sir Herbert was recognised as the one to consult if advice were needed on some obscure point in this subject, whether chemical or physical. It is however his work on the production of optical glass which constitutes his outstanding achievement. When the Great War came he grasped the nature of the problem that confronted those who were responsible for the production of the optical appliances without which the successful prosecution of the war would have been so much increased in difficulty. He threw himself into this war work with all his enthusiasm and skill, and some at least of his friends know that his life was shortened thereby. His personal friendship for and contact with the late Sir Charles Parsons resulted in the production of optical glass of such high quality that this country was, and still is, in the front rank in an industry on which so much scientific and industrial research depends. His interest in microscopy never abated, and as chairman of the advisory committee to the department of applied optics at the Imperial College of Science he did much to promote the teaching of this subject in its varied applications. His loss will be felt by a wide circle of friends by whom he was regarded with respect and affection.

TOXIC EFFECT OF METAL ON BONE

THE tendency of modern bone surgery is towards disuse of methods involving internal fixation of fractures. It is recognised that metallic agents in particular (such as plates, screws, and wires) act as foreign bodies, and may thus retard union. The risk of sepsis is also, of course, well understood, though the precautions taught by Lane and now generally practised should make it negligible in open operations on bone; and Haas[1] has been drawing attention to the possibility of late osteomyelitis following the insertion through the skin of pins and wires for the purpose of skeletal traction. But the direct toxic action of the metal is a danger that has been less seriously considered, and, as there are occasions (e.g., in the treatment of fractures of the femoral neck) when a metal fixative may be useful, any available information about such an action demands notice.

Ménégaux and Odiette[2] have approached the problem experimentally by testing the effect of metals on the growth of young fibrous and osseous cells, and on the structure of living bone. The tests were made in vitro—i.e., in tissue culture—and in vivo, and the results show that, while a few of the common metals do no harm, all the others, in different degree, inhibit growth in tissue culture and cause destructive changes in living bone. Whatever the type of experiment, the order of toxicity amongst the various metals proved to be the same, and tissue culture experiments, though obviously somewhat removed from the conditions of surgical practice, nevertheless seemed reliable for the particular purpose. They demonstrated among other things a cytotoxic action on fibroblasts and osteoblasts. Ménégaux and Odiette, who believe in the individuality of the osteoblast, hold that its specific action is to fix mineral compounds in developing bone and show that the metals that poison the cells also decrease the mineral contents of the culture.

Three series of experiments were made in studying the action of metals on living bone. Discs of various metals were placed under the periosteum of the bones of the leg in rats; wires were inserted into or around the tibiæ of rats; and metal plates were fixed to the long bones of rabbits and dogs. The most suitable bone for the last type of experiment proved to be the femur of the dog. At first attempts were made to fix artificially produced fractures by means of the plates, but this was too difficult, and subsequently the bone was deeply incised and the plate fixed across the cut. After a lapse of days or weeks, the bone was removed for histological examination. Iron and soft steel were found to be among the most toxic metals but aluminium bronze was even more destructive. These metals seriously interfered with the growth of osteoblasts and fibroblasts in tissue culture and hindered the fixation of mineral substances such as calcium. When placed in contact with living bone they had a degenerative effect on the periosteum, and produced granular changes and fragmentation in the bone itself. Copper and magnesium and their alloys stopped growth in cultures, but in living bone the natural resistance of the tissues was usually sufficient to prevent complete destruction, though magnesium was observed to destroy bones in rats and dogs. All these metals are therefore considered quite unsuitable for use in internal fixation of bones, and if they have been used, the plate, screw, or other appliance should be removed as soon as possible. Silver, with most of the other simple metals, all the alloys of aluminium, and most of the stainless steels, occupy an intermediate position. They are toxic enough to make their contact with bone undesirable, but with routine removal at the earliest possible date. Ménégaux and Odiette think that most of them can be used with impunity. Three metals fall into the group labelled non-toxic—namely, gold, lead, and aluminium. All, for obvious reasons, are unsuitable for internal splinting of bone; but fortunately three of the stainless steels are also innocuous—V^{2}A Extra, Nicral D, and Platinostainless D. These, according to Ménégaux and Odiette, are the ideal metals, since they do not inhibit the fixation of calcium in bone repair and do not poison the cells of bone or connective tissue.

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[3] THE LANCET, 1936, i., 1107.

[4] Myerson, A., and Ritvo, M.: Jour. Amer. Med. Assoc., 1936, cvii., 24.

[1] Haas, S. L.: Jour. Amer. Med. Assoc., Nov. 17th, 1936, p. 1607.

[2] Ménégaux, G., and Odiette, D.: l'Ostéosynthèse au Point de vue Biologique: Influence de la Nature du Metal. Paris: Masson et Cie. 1936. Pp. 176. Fr. 35.

A FAMOUS STATISTICIAN

The death of Harald Westergaard of Copenhagen at the age of 83 has removed another famous figure from the world of statistical science. Prof. Westergaard, who retired from his chair in 1924, retained his intellectual keenness in retirement and many will recall his speech at the dinner in honour of Karl Pearson in 1934. Of his writings that which will be best remembered by medical statisticians is the treatise on Mortality and Morbidity, first published in 1882, which deservedly passed through more than one edition. As recently as 1931 he published, in English, an excellent history of statistics. Westergaard was a strikingly handsome man of gracious personality and will be much missed by his English colleagues.

SCOPOLAMINE-MORPHINE SEMINARCOSIS

Although every means of obtaining painless labour has been discussed during the last year or two, comparatively little has been written or said of the process that used to be known as "twilight sleep." A recent paper [1] on the subject is based on an experience of twenty years and is therefore worthy of consideration. The authors make no extravagant claims and the practical merit of the method is obviously much reduced by the conclusion that "the disadvantages are chiefly from the standpoint of the attendants. Someone must be constantly with the patient, particularly the one who is supervising the injections." In other words, properly and efficiently used twilight sleep is available only for institutions. It is not feasible for the vast majority of private patients, since it requires the constant presence of the practitioner from the first injection, given during the first stage, to the end of the confinement. In its own special sphere the method has a place: for in spite of the not uncommon restlessness and occasional excitability of the patients, most of them come through their ordeal with no danger and scarcely any discomfort. Nor are the infants' risks increased when the process is managed by experts. But as a general means of avoiding the pains of labour genuine twilight sleep, even with the aid of barbiturates which the authors recommend, cannot bear comparison with the simpler methods commonly employed.

COLD FACTS FROM LABRADOR

The appeal of the medical officer of one of the stations of the Grenfell Association for a "very small greenhouse" where he may grow seedlings to ensure better gardens for the fisherfolk and thus lessen deficiency diseases shows at once the difficulties against which the workers of the Association have to struggle and the thoroughness with which they cope with them. The work which was begun by Sir Wilfred Grenfell in 1892 is now carried on in five hospitals, six nursing stations, and four orphanage boarding-schools. The Association looks after the education of the young and distributes work among the people which enables them to buy what we would consider necessities from the outside world. The hooked rugs which the women make and the famous Grenfell cloth may be had at 66, Victoria-street, London, S.W., where donations to the Association may also be sent.

DEVELOPMENTS AT LEEDS

As announced in our last issue a great gift has been made to the University of Leeds: Mr. F. Parkinson, who was a student at the University in the early years of this century, has promised £200,000 to cover the expense of the great central block, whose erection has hitherto been deferred because of more urgent needs. In this block, which will form the most striking architectural feature of the University, will be the main entrance and the entrance hall giving access to the Brotherton library, which was opened a few weeks ago. It will also accommodate the administrative departments. Mr. Parkinson, who has already given £50,000 to provide scholarships for students, says of his new gift that he has in mind "an entrance and entrance hall which would leave an indelible impression on the mind of the student which he would remember in after years with affection." It is interesting to look back to the days when the disruption of the old Victoria University was being discussed and to remember how many people in Leeds and in Yorkshire generally feared that a University of Leeds might not be able to stand by itself. All such fears have proved groundless, and the number of students is greater than it has ever been. The developments in the faculty of medicine have been correspondingly striking: for we have seen the completion of the buildings of the medical school by which the accommodation of the department of physiology has been greatly improved: the establishment of an institute of pathology which is one of the most complete in the country; and the addition a few years ago of a well-equipped dental school.

A request was received last year from the Gas Light and Coke Company by the Royal College of Physicians of London for advice concerning domestic heating by gas, considered from the point of view of health and also of comfort. An advisory committee was appointed by the College and an interim report was issued in August, 1935. A further report is published this week signed by Prof. W. W. Jameson, Sir Joseph Barcroft, Sir Arthur Hall, Dr. Guy Crowden, and Dr. Reginald Hilton.

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[1] Krebs, O. S., Wulff, G. L., and Wassermann, H. C.: Jour. Amer. Med. Assoc., Nov. 21st, 1936, p. 1704.

SPECIAL ARTICLES

REPORT ON A CLINICAL AND RADIOLOGICAL EXAMINATION OF WORKERS EXPOSED TO ALUMINA DUST[*]

ONE of the chief sources of silicosis in the pottery industry has been the exposure of workers to the dust of powdered flint in the processes of placing china biscuit ware in flint preparatory to firing the ware, and removing the adherent flint from the fired biscuit ware in preparation for decoration and glazing. The employers, realising this, experimented with various substances in the search for a substitute for flint as a bedding material, and sufficiently satisfactory results were obtained with alumina to justify, from the manufacturing point of view, its adoption for that purpose. Before coming to a decision as to this, the manufacturers asked the Home Office for advice as to whether the use of alumina would be attended by risk of pneumoconiosis to workers exposed to it. The Home Office suggested to the Medical Research Council that this question might be referred to the Committee on Industrial Pulmonary Disease for inquiry.

There were no satisfactory data regarding the effect of alumina dust on the human lungs, but a preliminary survey of the processes in the manufacture of aluminium showed that the men employed on the reduction furnaces were exposed to alumina dust and an endeavour might be made to determine, by examining those workers, whether that exposure had caused any injury to the lungs.

METHOD OF SELECTION

Before embarking on the clinical and X ray examination of the operatives who had for a number of years been exposed to the inhalation of alumina, a complete list was obtained from the British Aluminium Company of all those men in its employ, either at the Kinlochleven or the Lochaber works, who had worked for at least five years in either (1) the power-house and workshop, or (2) the refinery, or (3) the reduction factory. This list provided information for each operative with regard to his approximate age, precise occupation at the time of this "census," previous occupations, and particulars of his insurance under the National Health Insurance Acts. Similar particulars were also given for a number of past workers who were in receipt of pensions from the company. The examination was to be confined to workers in the reduction factory (and pensioners who had previously worked there), since these were the operatives most exposed to the dust. The total number of these men—i.e., who had worked there for more than five years—was 145 (including 8 pensioners). It was decided to examine a sample of 50 of these operatives, the sample to include men of different ages and different durations of work, in the reduction factory, so that in the event of any abnormal condition of health being found, its time of onset might possibly be discovered. From the approximate ages given the numbers selected were 6 at ages 20–29, 12 at 30–39, 12 at 40–49, 12 at 50–59, and 8 at 60–69, the last including two of the pensioners. Of those selected the durations of employment in the reduction factory varied between 5 and nearly 40 years.

Any man whose previous occupation was one in which he might have been exposed to a harmful dust—e.g., a slate quarrier—was definitely excluded from the sample (12 in all). With that exception no deliberate selection of any kind was made. The men with differing durations of work required to make up the age quotas were selected entirely at random from those of each age and duration type available on the list. With the two exceptions to be mentioned the sample should therefore be quite unbiased with regard to the health of the operatives chosen. The two exceptions were :—

(*a*) One operative included in the original selection had been ill for some time with "an irregularity connected with the blood circulation in his legs," was about to undergo an operation and was not available for examination. To take his place a second choice was made from the original list. (*b*) One operative refused to be examined at the last moment and the Examining Board accepted a substitute. The substitute happened to be one of those who had worked previously in a slate quarry, and had therefore been deliberately excluded from the sample.

The remaining 48 originally selected were all examined.

On the whole it appears that the method of selection should ensure that the sample is quite unbiased, and should give a very fair representation of the operatives at different ages and with different durations of work. Excluding those men who had previously worked in dusty occupations the sample comprised at all ages nearly 40 per cent. of the specified population available for examination, and a higher proportion in the older age-groups.

THE EXAMINATION

By arrangement with the Home Office, three members of the Silicosis Medical Board—Dr. C. L. Sutherland, Dr. A. Meiklejohn, and Dr. F. N. R. Price—made the clinical examinations at the factories. The record of examination of each worker included the following data : age ; duration of employment (*a*) as a furnaceman attending the reduction furnaces, (*b*) on other work in the furnace-room ; nature and duration of work in any other employment ; family history and personal history of illness ; notes on general nutrition, the presence of respiratory embarrassment, cough, and expectoration. Measurements of the chest and the condition of the upper respiratory passages were noted. A complete clinical examination of the chest was made, and physical signs were recorded and the interpretation of the clinical findings noted in each case.

Immediately before the clinical examination each worker was examined radiologically at the works, by arrangement with Messrs. Portable X-Rays Ltd., London, under the supervision of the members of the Medical Board. Radiograms were taken on 17 in. by 14 in. duplitised films with an exposure of 1/10th second at a distance of 6 ft., except in seven cases where, owing to thickness of the chest, the distance chosen was 4½ ft. The radiograms were examined in London by a subcommittee of the Committee on Industrial Pulmonary Disease.

A serious family history of tuberculosis was given in one case. The man himself had also suffered from pulmonary tuberculosis and tubercle bacilli were found on one occasion in the sputum, but no clinical or radiological evidence of the disease was found at the present examination. It appears that a tuberculous pulmonary lesion was diagnosed in this case after 13 years had been spent as a tapper in the furnace-room, and subsequently the occupation of furnaceman was followed for 7 years without a recurrence of progressive disease being produced.

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[*] Report by the Industrial Pulmonary Disease Committee of the Medical Research Council. The members of the committee are : Sir Arthur Hall (chairman), Dr. A. E. Barclay, Mr. J. C. Bridge, Prof. S. L. Cummins, Dr. S. W. Fisher, the late Prof. E. H. Kettle, Air Vice-Marshal Sir David Munro, Mr. R. L. Rawlinson, Prof. M. J. Stewart, Dr. Cecil Wall, and Dr. E. L. Middleton (secretary).

General physique was satisfactory in the majority of the men, but poor development or some deformity of the chest was noted in eight cases. Clinical examination of the chest revealed no change from normal in 41 of the men. In one physical signs were found consistent with paroxysmal bronchial asthma, of which a history was given, the onset being about ten years ago. Chronic bronchitis was diagnosed in a man who had been gassed in the war and treated in hospital four or five weeks. He had had several attacks of chest trouble since that time. In a few others slight adventitious sounds were found, with no other departure from normal.

RESULTS

In the last column of Table I. the conclusions arrived at on interpretation of the clinical and radiological data are indicated for each age-group by the letters A., B., C., and D., which have the following significance :—

A. Nothing found in the clinical or radiological examinations which suggests any changes in the lungs : 30 cases.

B. Changes in the lungs found clinically and radiologically : 5 cases in which the diagnoses were : (1) consistent with history of previous pneumonia ; (2) asthma ; (3) catarrh ; (4) chronic bronchitis ; (5) slight fibrosis or senile changes.

C. Changes in the lungs found clinically only : 1 case ; slight signs of bronchial catarrh.

D. Changes in the lungs found radiologically only : 14 cases. The changes in two were doubtful and in all the others they were of slight degree. Classification of the changes, and, in parentheses, the clinical findings, are as follows : (*a*) Slightly increased striation, or more fibrosis than usual ; 3 cases : (1) (occasional adventitious sounds) ; (2) (normal) ; (3) (flat chest). (*b*) Evidence of old pleurisy ; 3 cases (all normal). (*c*) Evidence of slight emphysema ; 4 cases : (1) (very muscular), (2), (3), and (4) (normal). (*d*) Calcified glands ; (both big men, in both occasional rhonchi found). (*e*) Slight catarrh. (*f*) Catarrh ; ? old pulmonary tuberculosis, right apex ; (normal).

TABLE I

Age-group.	Number of men examined.	Years of work in furnace-room.	Classification on basis of past history and clinical and radiological examinations.			
			A.	B.	C.	D.
20–29 ..	6	5–12	3	—	—	3
30–39 ..	12	6–18	7	—	1	4
40–49 ..	10	11–25	5	3	—	2
50–59 ..	14	14–34	9	1	—	4
60–69 ..	8	12–39	6	1	—	1
Total	50	5–39	30	5	1	14

CONCLUSIONS

After considering the results of the clinical and radiological examinations and the report on sickness rates the committee was unable to find, within the limits of the material included in this investigation, any evidence that the inhalation of alumina dust had caused fibrosis of the lungs.

The committee thanks the owners of the two factories at which the investigations were made, the managers and their staffs for valuable assistance in regard to the statistical inquiry, and for providing facilities for the medical and radiological examinations, and the workers for their interest and coöperation. Acknowledgment is also due to Mr. A. Bradford Hill, D.Sc., for advice on the statistical aspect of the inquiry, for selecting the workers for examination, and for providing a note on the sickness experience of the workers in alumina ; to the chief medical officer and two members of the Silicosis Medical Board—Dr. C. L. Sutherland, Dr. A. Meiklejohn, and Dr. F. N. R. Price—for the skill and care they devoted to the medical examinations. The committee appreciate the success achieved by Messrs. Portable X-Rays Ltd. in carrying out the radiographic work and the care and trouble they took to meet the unusual demands of this inquiry.

APPENDIX I

Sickness amongst Workers in Alumina

BY DR. BRADFORD HILL

In addition to the clinical and X ray examinations an attempt was made to measure the amount of sickness experienced by the workers in the two factories. The list of workers, which was obtained as a preliminary to the investigation, included particulars of the approved societies to which the operatives belonged under the National Health Insurance Acts. It was found that the number of societies represented by members at these works was very nearly fifty, but a large number of societies had but one or two members there. In fact, it was found that the sickness experience of over 80 per cent. of the operatives could be obtained from only 9 societies. It was decided to confine the inquiry to this number. With the assistance of the Department of Health for Scotland the 9 societies were approached and kindly provided the sickness history of the men belonging to them over the five years 1931 to 1935 inclusive. These operatives were divided into two groups : (1) men employed for at least five years previous to the inquiry in the reduction works, and (2) men employed for at least five years previous to the inquiry in the other parts of the factory—viz., the workshops, refinery, and power-house. The object of investigation was to see whether the former group, exposed presumably to a higher concentration of dust in the atmosphere, showed any pronounced difference in its sickness rates from the rate experienced by workers in the other parts of the factory. The histories related to 107 men in the reduction works and to 129 in other parts of the factory. As sickness rates vary with age, a preliminary comparison of the two groups was made with regard to that factor. Table II. shows that in the reduction works compared with the rest of the factory there were proportionately rather more workers at ages over 40 years and less at under 30 years. As sickness rates usually increase

TABLE II

Age last birthday on Jan. 1st, 1931.*	Number of men in—	
	Reduction works.	Other parts of the factory.
Under 20 ..	5 (*4·7*)†	10 (*7·8*)
20– ..	27 (*25·2*)	46 (*35·7*)
30– ..	31 (*29·0*)	33 (*25·6*)
40– ..	31 (*29·0*)	26 (*20·1*)
50–60 ..	13 (*12·1*)	14 (*10·8*)
Total ..	107 (*100·0*)	129 (*100·0*)

* Six men in the reduction works and five in other parts of the factory entered their societies during 1931–35. They have been allocated to the age-groups according to their age last birthday on Jan. 1st of the year in which they entered.

† The italicised figures in parentheses are the percentages in the age-groups.

with age, this difference may tell slightly against the operatives in the reduction works.

Excluding the eleven entries referred to in the footnote to Table II., there were 101 men in the reduction works and 124 in other parts of the factory whose sickness history was available for the complete five years. 36 of the former, or 35·6 per cent., and 54 of the latter, or 43·5 per cent., had no sickness at all during the five years. The difference between these percentages is small and not more than might easily arise by chance with such small numbers. The total number of claims made over the five years (including cases of workmen's compensation) was 135 in each group. From this figure calculation of a claim rate can be made; taking the rate as the number of claims made per 100 persons per annum, it is 25·2 in the reduction works and 20·9 in the other parts of the factory (for simplification the few entries have been counted as if they were present for the whole five years; more accurate treatment makes no material difference to the results). If the comparison be limited to *illness*—i.e., injuries, compensated or otherwise, be excluded—the two rates become 19·4 and 17·4. The rate is slightly higher in the reduction works.

A second rate to be utilised is the number of days of sickness *per person*. The *total* number of days of incapacity in the reduction works was 4027, and in the other parts of the factory 2885; this appears to be a large difference but the former total includes 700 days of absence of one man due to an injury (a W.C.A. case). If all injuries be excluded from both groups, the total days lost due to *illness* are 2039 and 2050; the number of days per person per annum is, then, 3·8 in the reduction works and 3·2 in the other parts of the factory, while the average duration of a claim is 19·6 days in the former and 18·3 days in the latter.

Finally, the type of sickness suffered by the two groups has been compared by means of the diagnoses recorded. This comparison is made in broad groups in Table III.

TABLE III

Diagnosis.	Number of sicknesses recorded under given diagnosis.	
	Reduction works.	Other parts of the factory.
Diseases of respiratory system ..	42 (*31·1*)*	59 (*43·7*)
" digestive " ..	8 (*5·9*)	12 (*8·9*)
Rheumatism, &c.	13 (*9·6*)	6 (*4·4*)
Infectious diseases	5 (*3·7*)	1 (*0·7*)
Injuries (under W.C.A. and otherwise)	31 (*23·0*)	23 (*17·0*)
Skin (including septic) conditions	7 (*5·2*)	7 (*5·2*)
Other causes	15 (*11·1*)	16 (*11·9*)
No diagnosis	14 (*10·4*)	11 (*8·2*)
Total	135 (*100·0*)	135 (*100·0*)

* Percentages.

The operatives in the reduction works appear to have a rather *low* incidence of respiratory complaints, but taking the small numbers into account there is, in general, no very distinct difference in the proportional incidence of the various groups of complaints (or in the absolute incidence, as can be shown by calculation of the claim rates for each cause).

It appears from this admittedly limited material that the operatives in the reduction works experienced slightly higher sickness rates than the men in the other parts of the factory, but that no really substantial differences are revealed in the kinds of illness suffered by the two groups; the difference in sickness incidence does not appear to be due only to the older age-distribution of the men in the reduction works for a slight excess is apparent amongst comparable age-groups.

APPENDIX II

Investigation of Dust-clouds

Notes from a report by Mr. K. L. GOODALL

H.M. INSPECTOR OF FACTORIES

The dust-cloud consists of alumina with small proportions of aluminium and sodium fluorides, sodium oxides, and cryolite. Carbon dioxide is present in the atmosphere with traces of carbon monoxide and fluorine. Soot was removed from the dust records by heating them over the flame of a spirit lamp for 15 minutes, and they were counted under a magnification of 1250 diameters. The counts represent all particles seen as distinct and resolved entities down to about 0·25 microns.

At Factory K, records taken with the thermal precipitator worn by furnace workers ranged from 1020 to 2430 particles in 1 c.cm. of air; samples taken to represent the general air of the furnace-room varied from 410 to 655 particles in 1 c.cm. At breathing level of a labourer emptying sacks of alumina, in the furnace-room, the concentrations were 1510 and 1580 particles in 1 c.cm.

At Factory L, where a different method is in use for feeding the furnaces with alumina, the concentration in the central atmosphere of the furnace-room was 408 particles in 1 c.cm.; at breathing level of men attending to the furnaces 608 to 1480 particles in 1 c.cm. At a point outside the furnace-room the concentration at breathing level of a man emptying wagons of alumina, inspecting alumina bunkers, and attending an underground alumina conveyor, was 426 particles in 1 c.cm.

The median sizes of particles over the whole series were between 0·23 μ and 0·5 μ.

HIGH VOLTAGE X RAY THERAPY AT ST. BARTHOLOMEW'S HOSPITAL

THE Mozelle Sassoon high voltage X ray therapy department at St. Bartholomew's Hospital was opened on Thursday of last week by Mrs. Meyer Sassoon, donor of the department, in the presence of a large and distinguished gathering. Immediately following this ceremony, a memorial plaque to the late Dr. R. G. Canti, clinical pathologist to the hospital, designed and executed by Miss I. Donaldson, was unveiled by Dr. Malcolm Donaldson.

THE NEW INSTALLATION

Lord STANMORE, treasurer of the hospital, expressed the profound gratitude of the governors to Mrs. Sassoon for her munificent gift, to the Sir Halley Stewart Trustees for their endowment of a fellowship for a whole-time officer to the department, and to the British Empire Cancer Campaign for their support in connexion with cancer investigation for many years.

Lord RUTHERFORD spoke of medicine's debt to science, and especially to physics, of which the two greatest gifts were, firstly, the discovery of X rays in 1895, and secondly, the discovery of radio-activity in 1896. X rays have become indispensable in medicine, both for diagnosis and treatment. Lord Rutherford then referred to the steady and slow development of X ray tubes, which had made possible the very high-powered apparatus that he had just viewed. Such an apparatus, working at one million volts, would enable rays to be produced which would equal in wave-length the gamma rays of radium. He emphasised the fact that X rays and the gamma rays of radium were identical in nature, and he was certain that if a beam of gamma rays *could* be compared with a beam of X rays of the same wave-lengths, the effects would be found to be identical. The energy of the shortest wave-lengths of the gamma rays from the radium family of elements would correspond to a maximum of two million volts, but the average corresponding voltage for the complete spectrum of these rays would only be about 600,000 volts. It would be seen that a beam could be produced from the new high-voltage installation which would approximately be the same in quality as a beam of gamma rays, but at a very much higher intensity. For these reasons he looked forward to a comparison of the results obtained by the new installation with those of the radium beam research at the Radium Institute, with which he had been associated. Lord Rutherford then referred to some of the features of the installation. The tube, which had been designed by his old friend, Dr. T. E. Allibone of Metropolitan-Vickers, was no less than 30 feet long and it weighed 10 tons, and it was hoped that from it would be obtained radiations produced at a voltage which was as high as, if not higher than, that obtained in any other country. He congratulated the governors of the hospital on their energy and vision in initiating this work, and he would watch with great interest the progress of what must be regarded as a great adventure.

Lord **Horder** said he spoke as chairman of the original radiotherapeutic department of the hospital, the pioneer department of its kind in the country, which had now been merged into the cancer department, under the chairmanship of Sir Charles Gordon-Watson. Throughout the history of this department there had been close collaboration between the hospital and the British Empire Cancer Campaign. He wished to make it clear that this new high voltage department, itself a great enterprise, was also part of a concerted scheme of investigation which had been in progress for many years. What was important in any attack on the cancer problem was team-work—collaboration between clinicians, radiologists, pathologists, and physicists—and he considered that the prosecution of the scheme was in the hands of a personnel second to none in this country. It was, as Lord Rutherford had said, a great adventure, and no one could predict what good would accrue. Whatever the result, it would be a necessary addition to knowledge. Radiation had much to its credit. It was hoped that its credit would be added to through this generous gift.

Sir **Charles Gordon-Watson** said it was his privilege to offer grateful thanks to Mrs. Sassoon for her splendid benefaction. He traced briefly the development of radiation research in the hospital from the first diagnostic installation in 1897. Radium was in use in the hospital, he said, before the war, and in 1919 the store was increased by an allocation of radium by the Medical Research Council for research purposes. Subsequent allocations from the British Empire Cancer Campaign and from private donors soon ensured that radium treatment would be available to every patient in the hospital who required it. The Campaign radium was used in the well-known experiments of Canti, which eventuated in the production of the Canti films. Research in high voltage X ray treatment began in 1924, when a special department was created with a whole-time officer, and for some years it had been contemplated to increase the voltage to upwards of a million, whenever funds and apparatus became available. The difficulty of the X ray therapist had always been to secure an adequate dose to the growth without serious damage to the healthy tissues. Greater penetration and higher intensity would help to achieve these objects, and it appeared that the difference in radio-sensitivity between normal and cancer tissues depended to some extent on the wave-length of the radiation.

THE CANTI MEMORIAL

Dr. **Malcolm Donaldson** spoke of the late Dr. Canti's contribution to cancer research, and especially to the establishment of the high voltage department. As far back as 1929 Canti had been thinking out means for the initiation of a high voltage department, and when this had become possible Canti's tireless energy and enthusiasm in the preparation of the plans were a stimulus to all his colleagues. Canti was perhaps best known to the public for his films on the effects of radiations on tissue cultures, but these were only incidental to a well-planned scheme of research upon which he was engaged up to the time of his death. He would be sadly missed in all the many spheres of his activity, but nowhere more than as hon. scientific secretary of the British Empire Cancer Campaign.

MEDICINE AND THE LAW

Inadequate Post-mortem Accommodation

Another protest against the disgracefully inadequate accommodation for post-mortem examinations in country districts was made last week. Giving evidence at an inquest held near Worthing, Dr. A. J. Head of Storrington, Sussex, described the conditions in which he had to make an autopsy. The place was a shed or lean-to, quite close to the road: it was difficult to prevent school-children from looking in: when the door was closed there was no light because there was no window. There was no sanitation and no water-supply. A butcher would not be allowed to slaughter cattle in such a place. Dr. Head added that he believed that these shocking conditions existed all over rural England; he had practised in three counties, and they were much the same in this respect.

This inadequacy of accommodation for autopsies is, of course, a notorious cause of complaint. Two years ago Sir Samuel Brighouse had to draw attention to premises at Aintree which consisted of a dirty outhouse with no table and no supply of warm water. A year earlier Dr. D. G. Garnett, the medical officer of health for Leiston in Suffolk, wrote an open letter to the Home Office in condemnation of the place in which he had to work; there was scarcely room to turn round in it and there were no means of washing. In part these difficulties have been due to the sensitiveness of public opinion which reflects itself in the laws passed by Parliament. For fear of distressing the relatives of deceased persons, it has been felt that mortuary and post-mortem room should not be under the same roof. Section 143 of the Public Health Act of 1875 made provision for a post-mortem room "otherwise than at a workhouse or mortuary." These words disappear in the equivalent clause of the new Public Health Act which comes into force next year. The official committee which framed the 1936 Act reported that the most convenient place for a post-mortem room was at a mortuary and that, provided the room was properly separated from the rest of the mortuary, there appeared to be no good reason why it should not form part of the same building. It is a little curious that Section 141 of the 1875 Act authorises the Minister of Health to insist that the local authority shall provide a mortuary, whereas Section 143 does not allow him to insist on the provision of a post-mortem room. The changes which the 1936 Act makes, while otherwise reproducing Section 143, are valuable. When the new Act takes effect, the Minister will be able to insist on local authorities and parish councils providing a post-mortem room; there will be power to charge for the use of the room, and there will be no longer any necessity to place the mortuary and the post-mortem room in separate buildings. The Ministry of Health must use its powers to put an end to the disgusting conditions which exist in country districts to-day.

Prosecution of Nursing-home Proprietors

The Surrey county council took proceedings lately against a woman who was conducting a nursing-home at Epsom without being registered. An assistant medical officer of health and a superintendent health visitor had paid a visit to the premises. On their explaining that they had reason to believe she was using the house as a nursing-home, the defendant denied that she had any patients in her house, but she admitted that people were staying there. The officials found an elderly lady, completely crippled and bed-ridden, who was paying three guineas a week; other persons were paying three and two guineas. There was no suggestion of improper treatment; it was understood that the defendant had some previous training as a hospital nurse. The case for the prosecution was merely that the premises were not registered as required by the Act of 1927. The Bench said there must be a conviction, but, as the offence had been somewhat inadvertent and as the proceedings had been instituted as a warning, the case was dismissed under the Probation of Offenders Act on payment of five guineas costs.

The Nursing Homes Registration Act of 1927 is superseded by the prospective provisions of Part VI of the Public Health Act of 1936 to the like effect. When these provisions were being considered by the Joint Committee of both Houses of Parliament last June, there were vigorous comments on the 1927 exception in favour of Christian Science nursing-homes. The Joint Committee's duty, however, was merely to see that the 1936 Bill was faithfully reproducing the 1927 Act. To have cancelled the exemption would have been to invite opposition which might have been fatal to the Bill.

Withdrawal of a Special Treatment Licence

Dr. Stavros Constantine Damoglou was deprived last week, after a hearing before the Public Control Committee of the L.C.C., of his licence to give "special treatment" at a massage establishment at East Gate, Regent's Park. Dr. Damoglou, it was said, claimed "to make sightless eyes see"; in cross-examination he made this definite assertion. Miss Mabel Thomas, a blind witness, stated that she consulted Dr. Damoglou and was told that he would guarantee her sight in two or three years' time. She had electric needle and sun-ray treatment and was put on a diet. For about a year she went twice a week to Dr. Damoglou; later she went every day. After 16 months' treatment and paying £70 she was still completely blind. Mr. Robert Williams, an ophthalmic surgeon, said that Miss Thomas's blindness was due to the wasting of the optic nerve of both eyes: he thought it impossible for her to recover her sight. There was similar evidence about another blind patient. Dr. Damoglou protested that the patients had not given themselves time to be cured: Miss Thomas ought to have persevered, he said, for three years. In reply to questions from members of the Public Control Committee, he said that he was a doctor of medicine at the medical faculty of Constantinople and also of Paris: he had not registered as a medical practitioner here because medical men would not coöperate with foreigners.

THE STATE OF CANCER RESEARCH

INVESTIGATION has produced a number of well-established facts about cancer which seem at first sight to be contradictory. It is recognised that malignant growths can be produced in animals by a great variety of carcinogenic agents, including pure organic substances of known chemical constitution, many of which are chemically closely related to the sterols. These carcinogenic agents require a long time to induce cancer; they produce both sarcomata and carcinomata, of different histological types, and the tumours thus produced can with very few exceptions be transmitted to other animals of the same species by transplantation of living cells.

But there are certain tumours, first observed in fowls by Peyton Rous, which can be transmitted to other animals by cell-free extracts, and evidently therefore contain an agent separable from the malignant cells. This agent behaves like a virus; it brings about its effect almost immediately, its action is highly specific in so far as it reproduces only the same histological type of tumour as the one from which it was extracted. It can act as a specific antigen and produce antibodies, and these immunity reactions indicate that these agents are foreign to the fowl.

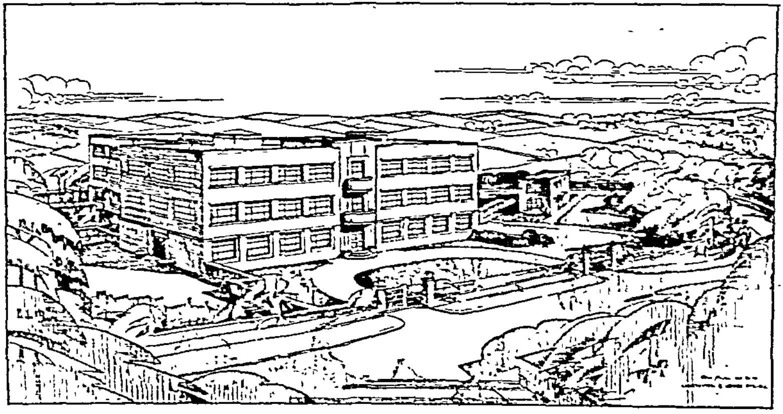
These two groups of facts—the existence of chemical carcinogenic substances and the existence of tumours containing a virus—are not mutually exclusive, as is believed by some. In reviewing the problem in the 34th annual report of the Imperial Cancer Research Fund Dr. W. E. Gye endeavours to explain how the facts can be fitted into a coherent picture of the ætiology of cancer. He quotes from a paper by Dr. W. Cramer published during the current year:

> "It has often been pointed out that the ætiology of cancer presents two entirely different and mainly independent aspects: first, the nature of the intrinsic cellular change which confers upon a cell the property of malignancy (this may be called the proximate cause of cancer), and, secondly, the conditions acting from without upon a normal cell which precede and bring about the intracellular change (the remote cause or causes of cancer). The numerous carcinogenic agents referred to above are the remote causes of cancer, and it is evident that our knowledge of these, although not yet complete, is fairly extensive. Their function is to prepare the area of tissue in which they act for the intrinsic cellular change by which a malignant cell is formed from a normal cell. In other words, they produce a 'precancerous' condition of the tissue. But they give no information on the nature of this intrinsic cellular change. The study of the carcinogenic agents and conditions (the remote causes of cancer) belongs in time and in mental concept to a different causal category from the study of the intrinsic cellular change—the proximate cause of cancer. They are not mutually exclusive. They complement each other."

The work carried out by the Imperial Cancer Research Fund bears on both these lines of inquiry.

VIRUSES

Perhaps the most striking piece of evidence demonstrating a close connexion between the chemical carcinogenic substances and the virus tumours is that it has been possible to induce by the chemical carcinogens tumours in fowls some of which are transmissible by cell-free filtrates and which, therefore, contain a virus. This, as Dr. Gye points out, enables us to conclude that there is no essential difference between the virus tumours which arise spontaneously in fowls and those which are chemically induced. And since the same chemical substance which induces tumours in fowls will also induce them in mice and rats and even in man, wider inferences become probable. The difficulty is that almost all the tumours induced by chemical carcinogenic substances in mice and rats and the great majority of the tumours induced in fowls have proved not to be transmissible by cell-free filtrates. Does that mean that this last group of tumours does not contain a virus, and must we therefore conclude that there is a fundamental difference in ætiology between malignant new growths transmissible by cell-free extracts and those transmissible only by living cells ?



Drawing of laboratories to be erected by the Imperial Cancer Research Fund on land at Mill Hill leased from the Medical Research Council.

A priori it is possible that in such tumours a virus is present and is prevented from exercising its carcinogenic activity by conditions not yet understood. Since the direct method of demonstrating the presence of a virus in these tumours fails, an indirect method has been employed by Dr. L. Foulds taking advantage of the immunity reactions referred to above. Rabbits were immunised with material from a fowl tumour produced by the injection of dibenzanthracene and found not to be transmissible by cell-free extracts. The sera of these rabbits proved able to neutralise the virus present in cell-free extracts of the Rous sarcoma No. 1. The provisional conclusion is drawn that although a cell-free filtrate of the chemically induced tumour is not able to start a fresh tumour, nevertheless the filtrate contains an antigen which is present also in filtrates of the Rous tumour and which is associated with the activity of the filtrate.

A very similar result has also been obtained recently by Dr. Peyton Rous working in the Rockefeller Institute in New York with the so-called filtrable Shope papilloma of the rabbit. This is an infectious papilloma which can be transmitted by cell-free filtrates, and which after a long time develops at its base a malignant skin carcinoma. These observations have been confirmed by Dr. F. R. Selbie. The carcinoma, however, cannot be transmitted by cell-free filtrates. Nevertheless Dr. Peyton Rous could show that it contains an antigen capable of neutralising the virus present in the papilloma extracts. Dr. Gye warns his readers therefore against dogmatic conclusions that failure to propagate a tumour with cell-free filtrates proves the absence of a virus in a tumour cell.

CARCINOGENIC SUBSTANCES

Of the chemical carcinogenic agents special attention has been paid during the current year to the œstrogenic hormones. Dr. W. Cramer and Dr. E. Horning have confirmed the observations of Lacassagne that these hormones if applied to the skin over a long period produce in mice cancer of the mamma, even in the males. They find, however, a fundamental difference between the action of these œstrogenic hormones and the chemical carcinogens previously used. The latter always produce cancer at the site of their application, and there are no marked changes in the internal organs. The carcinogenic effects of the œstrogenic hormones, on the other hand, appear not at the site of application (the skin) but in one specific organ remote from it (the mamma). In addition, there are in the whole organism profound changes, which had not been observed previously: arrest of growth, emaciation, degenerative changes in the adrenals, hyperplasia of the islets of Langerhans, and a hypertrophy of the anterior lobe of the pituitary which not infrequently leads to the formation of adenomata of the anterior lobe, and which is accompanied by a loss of its chromophil cells. The condition of the animal resembles that observed after surgical removal of the pituitary gland. The prolonged application of certain œstrogenic hormones, therefore, produces a functional hypophysectomy which is morphologically associated with an enlargement of the anterior lobe and a loss of its chromophil cells. Whether any of these changes take a part in the development of mammary cancer under these conditions is at present being investigated. In view of the correspondence which has appeared recently in our columns concerning the possible danger to patients treated with œstrogenic hormone preparations for gynæcological conditions, special reference may be made to the statement in the report to the effect that there are no grounds for the fear that the therapeutic application of œstrin by skilled physicians may induce cancer.

On the other hand, the report contains a warning against the injection of radioactive preparations such as those made from thorium dioxide, which have been used in radiology for the visualisation of certain organs. Dr. Selbie has confirmed the observations of Prof. Roussy and his co-workers in Paris, that this substance even in small doses leads to the appearance of sarcomata.

THERAPEUTICS

The radiotherapy of cancer has been the subject of several investigations by workers of the Fund. Mr. H. G. Crabtree has found that while radiation damages the respiration of cells at body temperature, at low temperature the glycolytic process is affected.

Since normal tissues do not use glycolysis to any extent as a source of energy, the inhibition of glycolysis by radiation applied at low temperature to cancer cells may be said to constitute a differential action. Dr. Cramer finds that the period of recovery from the action of radium is very much longer for cancer cells than for normal cells, even when very small doses of radiation are applied, which by themselves have no apparent effect. By giving such very small doses at much longer intervals than are in use at present in the radiotherapy of cancer in man it is therefore possible to produce a cumulative action on cancer cells but not on normal cells. A differential effect on the cells of a malignant growth can thus be obtained and the method is recommended for a clinical trial.

The action of colchicine and of a number of other substances on cell division has been examined by Mr. R. J. Ludford, D.Sc. These substances produce an arrest of cell division, and it seemed possible that these substances might provide a means of arresting the growth of a tumour. It was found, however, in confirmation of the work of Prof. Dustin, of Brussels, that the action of these substances is not specific for cancer cells but extends also to normal cells, and that the amount necessary to produce an effect on the growth of a tumour is almost lethal to the organism. Therapeutic application is manifestly precluded by these findings.

The accompanying illustration shows the Imperial Cancer Research Fund's proposed new laboratories at Mill Hill.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Capts. J. G. Boal to R.N. Hosp., Plymouth; J. P. Shorten, D.S.C., to R.N. Hosp., Malta; and H. B. Parker, D.S.C., to *President.*

Surg. Comdrs. T. C. H. Neil to *Tamar;* O. D. Brownfield, O.B.E., to *Britannia* for R.N. Cadets Sick Quarters, Dartmouth; F. E. Fitzmaurice to *Drake* for R.N.B.; N. B. de M. Greenstreet to *Royal Sovereign;* J. B. Crawford to *Pembroke* for R.N.B.; R. J. Inman to *Drake* for R.N.B., and to *Eagle* (on recommg.); and J. Kirker to *Leander.*

Surg. Lt.-Comdrs. D. Duncan to rank of Surg. Comdr., and reapptd.; and A. R. Ewart to *Suffolk.*

Surg. Lts. M. G. Peever to *Pembroke* for R.N. Hosp., Chatham; J. M. Holford to *Grenville;* F. Bush to *Valiant;* J. A. Page to *Drake* for R.N.B.; and S. Whittington to *Suffolk* (on recommg.).

T. A. M. Maunsell to be Surg. Lt. and appointed to *Victory* for R.N. Hosp., Haslar.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Sub-Lt. R. T. Jones promoted to Surg. Lt.

Proby. Surg. Lt. R. C. Anderson to be Surg. Lt.

J. L. Holgate entered as Proby. Surg. Lt.

ARMY MEDICAL SERVICES

Col. F. Casement, D.S.O., Assistant Director-General, A.M.S., at the War Office, has been selected to succeed Col. J. W. L. Scott, D.S.O., Hon. Physician to the King, as Deputy Director-General, A.M.S., at the War Office, from March 26th, 1937, when the latter vacates the appointment on promotion to Major-General. His successor as Assistant Director-General will be Lt.-Col. (temporary Col.) S. W. Kyle, R.A.M.C., at present Assistant Director of Medical Services in Palestine (*vide* also THE LANCET, Nov. 7th, p. 1124).

ROYAL ARMY MEDICAL CORPS

REGULAR ARMY RESERVE OF OFFICERS

Lt.-Col. E. J. Kavanagh, D.S.O., M.C., having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

ARMY DENTAL CORPS

Short Serv. Commissions: Lt. R. J. Godfrey to be Capt.

Short Service Commissions: Lt. (on prob.) W. J. Constantine is confirmed in his rank.

To be Lts. (on prob.): R. W. Prescott and W. H. Burndred.

TERRITORIAL ARMY

Maj. E. R. Lovell, T.D., to be Lt.-Col. and to comd. the 164th (W. Lan.) Fd. Amb.

Capt. J. F. Wilde to be Maj.

Capt. A. N. B. Odbert relinquishes the appt. of Divl. Adjt., 46th (N. Mid.) Div.

Supernumerary for service with O.T.C.: Lt. G. N. Bailey (Empld. Univ. of Lond. Contgt. (Med. Unit), Sen. Div., O.T.C.) to be Capt.

J. B. MacKay (late Offr. Cadet, Aberdeen Univ. Contgt. (Med. Unit), Sen. Div., O.T.C.) to be Lt.

C. S. Nicol (late Cadet Lce.-Corpl., Harrow Sch. Contgt., Jun. Div., O.T.C.) to be Lt.

J. D. H. Wearing (late Cadet Sergt., Wrekin Coll. Contgt., Jun. Div., O.T.C.) to be Lt.

TERRITORIAL ARMY RESERVE OF OFFICERS

Capt. W. E. Hayes, from Active List, to be Capt.

ROYAL AIR FORCE

Wing Comdr. W. E. Barnes to R.A.F. General Hospital, Hinaidi, Iraq, for duty as Medical Officer.

Squadron Leaders G. J. Hanly to Home Aircraft Depôt, Henlow, for duty as Medical Officer; L. Freeman to No. 203 (F.B.) Squadron, Basrah, for duty as Senior Medical Officer, Basrah.

Flight Lts. E. Donovan to No. 101 (B.) Squadron, Bicester; J. McGovern to R.A.F. Station, Hucknall; W. P. Stamm to Princess Mary's R.A.F. Hospital, Halton; F. W. P. Dixon, M.B.E., and T. C. Macdonald to Superintendent of the Reserve, Hendon; H. L. Willcox to Aircraft Depôt, Hinaidi, Iraq; and J. Kemp to R.A.F. General Hospital, Palestine and Transjordan, Sarafand.

Flying Offr. W. J. Fowler to R.A.F. Station, Wyton.

RESERVE OF AIR FORCE OFFICERS

Flying Offr. H. C. Smith is promoted to the rank of Flight Lieutenant.

INDIAN MEDICAL SERVICE

Maj. R. S. Aspinall, C.I.E., to be Lt.-Col.

Capt. A. N. Chopra to be Maj.

Lt. (on prob.) C. W. A. Searle to be Capt. (on prob.).

J. D. Munroe to be Lt. (on prob.).

COLONIAL MEDICAL SERVICE

Dr. H. B. A. Macfie and Dr. R. A. Porter have been appointed District Medical Officers, Cyprus. Dr. R. L. Cheverton becomes Senior Medical Officer, British Honduras: Dr. T. H. Dalrymple and Dr. H. G. Edmunds, Medical Officers, Nigeria.

DEATHS IN THE SERVICES

Colonel TERENCE JOSEPH MCGANN, I.M.S., retd., who died on Nov. 22nd, at Mysore, India, was son of Owen McGann of Whitemount, Co. Clare, Ireland, and graduated at Dublin in 1866. In the following year he *joined* the Indian Medical Service, became senior surgeon at Bangalore, and sanitary commissioner of Mysore in 1870. In 1895 he was appointed principal medical officer of the Rangoon district, retiring in 1901. Colonel McGann had a fine academic and public career. He became F.R.C.S. Edin. in 1881 and took the D.P.H. Camb. in 1884; before that he had been first prizeman in a number of medical subjects. His published work includes an article in the *Madras Medical Journal* on the treatment of hepatic abscess and one on stricture in our own columns (1880, ii., 728). He was for long in charge of the maternity hospital at Bangalore and superintendent of the mental and leper hospitals there. He was 95 years of age at his death.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index.

BY A CHRONICLER

III

THE immediate popularity of *The Lancet* was not due, as I have seen assumed by many who have commented on the early stages of the paper, to the violence of its sentiments or to the offensiveness of its personalities. These things got the paper talked about by a larger public than that in whose interests it was produced, many of whom, while aware of the wide endeavour of the policy, regarded the methods employed as deplorable. The real novelty of the paper, and the one which secured almost unwilling subscriptions, arose out of the intention to produce a journal which should stand up for the rights of the doctor in his professional position, while also supplying him with medical information. The second intention was in the beginning placed first in all appeals for hearing, and reform in medical organisation did not appear as the prime objective until the attempts by those interested personally in preventing the diffusion of knowledge became fierce.

Previous medical journals had based their claims to attention on the design to furnish scientific information, and it is not to their discredit that the performance fell short of the design to a degree that to-day seems ridiculous. For consider the editorial position. Few attempts were made a hundred and more years ago to create centres at which an interchange of medical experiences could be effected, and papers read were the property of the institutions. There were thus no sources from which communications could be requested, and papers sent in voluntarily meant more to their writers than to anyone else. The medical journals of the time made no appeal to the bulk of the profession, and their contents were largely made up of excerpts from continental organs, as we have seen. Wakley, in founding *The Lancet*, made, in his first preface, the promise that he would give a "correct description of all the important cases that may occur, whether in England or on any part of the civilised Continent." This he could not do—it was a lavish offer made on the universal model. But he also promised reports of the metropolitan hospital lectures and this he could do, and the redemption of the promise was the source of his troubles and the fount of his success. He specially addressed "country practitioners whose remoteness from the headquarters, as it were, of scientific knowledge leaves them almost without the means of ascertaining its progress," adding that he would increase the stock of useful knowledge "of every individual in these realms."

The Lancet justified the aspiration to diffuse general wisdom with no more success than had attended other medical journals in similar designs; the success of the paper was due, directly or indirectly, to the policy indicated by the promise that "to the public, and to distant practitioners as well as to students in medicine and surgery, reports of the metropolitan hospital lectures would be supplied." In that sentence lay a direct challenge to all recognised medical authority. And when the challenge was taken up, a bitter fight began. And the spirit in which the fight was conducted was not due to any particular coarseness on the part of Wakley or of his opponents—it was the spirit of a coarse age. Certainly Wakley belonged to that class of animals against whom, it may be recalled, the young were warned in an old educational manual—they were described as dangerous in that they bit when molested. Wakley, when molested, bit. But the language used at this epoch did not shock readers as it would to-day, for its counter-parts could be found in all newspapers when personal rivalries were at play.

* * *

So *The Lancet* began to report the lectures on surgery delivered to the students at a small group of metropolitan hospitals where attendance had been made compulsory by the Royal College of Surgeons of England. Round the rights of property raged the original fight between *The Lancet* and the officialdom of medicine. And personalities became bitter when the editor of *The Lancet* declared that many of those who were asserting this right to a monopoly in the instruction of medical students were not by skill or knowledge fitted for the responsibility. Accusations of robbery on the one hand and of ignorance on the other became rife, and Wakley achieved a sensational fame and a large circulation for his paper, of whose turbulent existence everybody had to know. Throughout the first ten years of its existence *The Lancet* was a duelling ground for a series of encounters between the editor and the members of the privileged classes in medicine. The lectures of leading hospital surgeons and physicians were reported in its pages to the exasperation of the lecturers, and to the delight of the profession at large and the students. The great men feared that their fees as teachers in the metropolitan schools would diminish if the cream of their teaching, provided for large classes at a capitation fee of £5 the session, could be bought by anyone for sixpence a week; while every medical man or student, unable by circumstances to attend the teaching of his leaders, rejoiced in the chance offered to him of acquiring familiarity with their methods and theories through the medium of print. So the hospital staffs were ranged in unbroken phalanx in opposition to the new and, as they considered it, mischievous print. The office-bearers of the medical corporations, whose deliveries and performances were scathingly reviewed in early issues, were not slow to scent their foe, and followed suit. Everyone who had anything to gain by the peaceful reign of existent methods in school, hospital, or corporation—in other words most of the influential members of the profession—looked with uneasiness at the growing popularity of the new journal. Wakley was denounced as a literary pirate and a disseminator of moral garbage. He replied by reflections on the complete and fretful ineptitude of his denunciators, pointed to his growing circulation, scattered nicknames, and hinted at astonishing revelations of abuses arising out of the fact that publicity had hitherto been avoided by hospital officials. As a natural pendant to his assertion that the elections to the staffs of the various metropolitan hospitals were made out of pure nepotism, accounts were given of maladministration in the schools and malpraxis in the wards. And upon these came actions and cross-actions. Certain of the criticised were compelled to proceed legally against their critic, while their defence outside the law courts, undertaken by friends or rival journalists, on more than one occasion laid the defenders open to counter-charges of misrepresentation. In the first ten years of the existence of *The Lancet* the editor was engaged in ten actions, his opponents being eight separate persons. The proceedings in these actions constitute an interesting phase in the history of medical reform. Six of these actions were actions for libel, the aggregate sum of £8000 being claimed for damages; the aggregate sum of £155 0*s.* 0½*d.* was awarded, while the editor's costs were defrayed by public subscription. The language used on both sides of the fray was unedifying but often amusing.

* * *

Too much of the early success of *The Lancet* has been attributed to Wakley's scurrility. It is forgotten that at the time assault by unbridled language was habitual in newspapers. When an article in the *Medico-Chirurgical Review* alluded to the action of *The Lancet* in reporting the details of surgical practice as "a method of putting the operator to demoniacal torture," the reply in *The Lancet* began "prepared as we were for the imbecilities of hole-and-corner champions we were somewhat staggered at the impudent absurdity . . ." When the *London Medical Repository* said of the publication of Abernethy's lectures that "the honesty of the transaction cannot require consideration," *The Lancet* nicknamed its rival the Mausoleum and its contents were weekly held up to ridicule for their dullness and staleness. When Dr. Roderick Macleod in the *Medical and Physical Journal* reflected on Wakley he earned the title of Roderick the Goth, his organ was termed "the Gothic Absurdity" or the "Yellow Fungus" in reference to its coloured cover.

But such an interchange of compliments had not the significance that it would have to-day. At the historic Eatanswill election the local *Gazette* and *Independent*, it may be remembered, were politically opposed. Accordingly "our worthless contemporary the *Gazette*" said the *Independent*, and again, "that vile and slanderous columniator"; to which the *Gazette* replied "that disgraceful and dastardly journal, the *Independent*" and "that false and scurrilous print . . ." Pickwick was written a dozen years or so after *The Lancet* appeared and, making all allowance for the exaggerations of his riotous humour—and thanking God for them—the fact remains that Dickens started as a journalist when a boy, and knew perfectly well the truthful basis of his burlesque. Rival editors used very much the tactics of Mr. Pott and Mr. Slurk his competitor, and Wakley and his enemies were conforming to type.

Four years after the founding of *The Lancet* many of the leaders of the profession began to support *The Lancet*, as a rule surreptitiously and with strict anonymity, and the outraged officials saw that support from journals in rivalry of *The Lancet* was not valuable under the old-fashioned and pretentious pattern. Accordingly, the *Medical Gazette* made its appearance in 1827 sponsored by the classes who were being attacked. It immediately described the staff of *The Lancet* thus: "a set of literary plunderers (who) broke in on the peace and quiet of our profession"; whereupon *The Lancet*, to which in *format* the new venture had a likeness, replied "some despicable imitations of us have arisen and stunk and become extinguished . . . one or two are still emitting a little fœtor." Strong language, and we are now not in Regency days; but some ten years later than this the *Times* referred to the *Morning Post* as "this kitchen stuff journal," "this cooking out of livery." (I quote from Hatton's "Journalistic London.") So the want of manners was not peculiar to the medical press; it might manifest itself in any newspaper when a rival came up for notice, while no such improprieties marked the general contents of the papers; the *Times*, for instance, a hundred years ago, had its present high level of attitude and deliverance, and though the medical papers printed offensive personalities the bulk of their matter was written without scurrility.

* * *

What dictated the scurrility? I think that unconsciously many journalists in the early Victorian era were living up to the character given them in fiction; that they were displaying, as evidence of fearlessness and candour, the disregard for convention expected of them by public opinion, and that that public opinion was largely created by fiction. For the characters in fiction, when it is the work of an artist who draws lessons from observation and who is protected by experience from detectable errors, have immense influence in the formation of popular conceptions. How did the three great novelists of this era describe the journalist? What did they say to the public of him, and this at a later date than that of the medical ink-slinging that has been quoted? Dickens, Thackeray, and Balzac were all uncomplimentary to journalism. There may not be much opportunity to make a hero of a journalist; all these three were especially endowed for such a task, but unluckily for journalism they decided to present to the public an uncomplimentary portrait.

Dickens was a successful journalist—reporter, contributor, and editor—but so far as I can recall *the only journalists among the 1500 characters or* so detailed in his novels are ridiculous people, with *the exception of David Copperfield, whose connexion* with journalism is hardly mentioned though the character is more or less autobiographical. The writers for the press mentioned by Dickens are mainly the people whom Martin Chuzzlewit met in America: Prof. Mullit, who wrote powerful pamphlets and showed playfulness by issuing them under the pseudonym of "Suturb or Brutus reversed"; Miss Toppitt, Miss Codger, and Mrs. Hominy, "One of our chicest spirits"; and the ineffable Mr. Jefferson Brick, the war correspondent, who "struck deadly blows at the hundred heads of the Hydra of Corruption, now grovelling in the dust beneath the Lance of Freedom and spouting up to the universal arch above us its sanguinary gore." Mrs. Leo Hunter's famous poem is stated to have appeared in a magazine, but it seems to have been the only effort from her pen, so she is hardly a journalist. All these people are mere figures of fun, though excellent fun.

Thackeray, like Dickens, was for a long time a working journalist, and made his début as editor and proprietor of the *National Standard Journal of Literature Science, Music, Theatricals, and the Fine Arts.* Note the belief in the long title which, however, did not lead to a long life. Among the contributors to Thackeray's imaginary *Pall Mall Gazette*—the fictional title was adopted later in real life—we have Frederick Bayham, who sang a good song at the cider cellars; Mr. Bludyer, a critic who having "cut up a volume to his heart's content went and sold it at a bookstall and purchased a pint of brandy with the proceeds of the volume"; and Captain Shandon, who does much of his work in the Fleet prison and is generally allowed to be a picture of the brilliant unstable Dr. William Maginn, scholar, parodist, and part author of the "Noctes Ambrosianæ." In "Stunning" Warrington we have a sympathetic portrait, but here, also, the emphasis is laid on the Bohemian characteristics. The general impression is given that the journalist is a deboshed person; and Warrington, a fine and attractive fellow, is not allowed wholly to vary from type. For he begins his morning unshorn, with a pot of beer at his elbow, and we are told that at Oxbridge he had been one of the hardest livers and readers of his time and famous for drinking milk-punch.

Balzac's picture of a Parisian journalist is a shocking one. It occurs in the "Splendeurs et Misères des Courtisanes," published in 1838, in the famous encounter in the foyer of the Opera between Lucien de Rubempré and his former journalistic colleagues. This is Balzac's summary of their literary activities :—

> "Quiconque a trempé dans le journalism, on y trempe encore, est dans la nécessité cruelle de saluer les hommes qu'il méprise, de sourire à son meilleur ennemi, de pactiser avec les plus fétides bassesses, de se salir des doigts en voulant payer ses agresseurs avec leur monnaie. On s'habitue à voir faire le mal, à le laisser passer; on commence par l'approuver, on finit par le commetre. À la longue, l'âme, sans cesse maculée par de honteuses et continuelles transactions, s'amoindrit, le ressort des pensées noble se rouille, les gonds de la banalité s'usent et tournent d'eux-mêmes."

Balzac was writing deliberately a drama of social corruption, and the journalist was treated with the same ruthlessness as the man of fashion, the *grande dame*, the courtesan, and the financier. Like Dickens and Thackeray, Balzac had been a working journalist and had evidently derived a low impression of the calling and with Balzac an impression ever grew deeper and deeper as his terrible imagination drove his pen.

* * *

When medicine was treated as a subject to be noted in a sort of serial encyclopædia the attention which it received was valueless to the public and to the medical profession. But when the promotion of medicine, and the standing and circumstances of practitioners, received the undivided attention of medical journals, the wide spread of knowledge followed in a reliable form, and with it sound professional intention. And I think that the pedigree of medical journalism in connexion with medical literature, as sketched at the opening of these notes, becomes confirmed by what has followed on the establishment of medical journalism proper. It was suggested that in the records kept at the early Greek centres we had the basis for the production of systematic works; to-day the connexion between the journal and the book becomes abundantly clear. The wealth of references to the contents of serial medical publications, adduced in support of the views, lessons, and arguments to be found in all the literature of medicine—whether monograph or section within a system, shows that what happened two thousand years ago is happening to-day; first we have the records and then the literature. So, having fouled my nest by quoting the derogatory estimates of the journalist, which have been broadcast—though I am sure not felt—by eminent writers, it is with complacency that I look back on the ancient lineage and contemplate the present position.

CORRESPONDENCE

LONDON PUBLIC MEDICAL SERVICE EXTENSION

To the Editor of THE LANCET

SIR,—It is proposed on Jan. 1st, 1937, to start in London and Greater London a system of payment by contract for the medical attendance given by general practitioners to persons of family income not exceeding £550 per annum. This will be an extension of the existing London Public Medical Service, a body of general practitioners which has been providing such a service for the dependants of insured persons during the last eleven years.

The reasons for this innovation have already been given in a series of meetings and circulars. During the past few months the subject has been discussed at many meetings of B.M.A. division in London with a view of securing the approval and coöperation of the B.M.A. This has now been done as the council of that body has approved a recommendation of its Metropolitan Counties branch that it should be open for members of the B.M.A. in that area to take part in the scheme, except in such divisions as may declare that they do not want it to operate in their area.

This scheme is open to all general practitioners in London and Greater London. It is entirely under the control of the profession itself, and entrance to it can only be obtained through the doctor of the subscriber's choice. The premiums for the service to be given have been estimated after careful consideration of the income usually derived from this class of patient over a number of years.

Inquiries will gladly be answered by the undersigned.—I am, Sir, yours faithfully,

ALFRED COX,
Secretary.

17, Russell-square, W.C.1, Dec. 10th.

PROFUSELY BLEEDING PEPTIC ULCERS

To the Editor of THE LANCET

SIR,—At the risk of being tedious, might I again refer to the lessons of gastroscopy in connexion with the above subject? Surely it is time that the English-speaking medical profession realised that in the last ten years the gastric mucosa of at least twenty thousand patients as well as of experimental animals has been examined under comparatively natural conditions, in many instances repeatedly. I refer only to the publications of Gutzeit, Henning, Korbsch, and Moutier, without mentioning Schindler (who published his atlas in 1923, and who has since by the invention of the flexible instrument brought gastroscopy within the reach of the general practitioner), Elsner, Hohlweg, and many other pioneers, whose seniority gave them little time for large-scale investigations. The whole literature of hæmatemesis is so interlarded with traditional fictions, that I should be grateful if you would allow me to recall the very few facts, together with a few semi-facts and an explanatory hypothesis, which has at least the merit of being open to destruction.

Autopsy records with reliable clinical notes are regrettably scarce and in every instance those supplementary details which would render a statistical check possible are absent. I suggest and

I should be grateful for criticism on this point, that the European and North American records for the last 100 years show no change in the picture of fatal duodenal bleeding, but that there are considerable variations in the picture of fatal gastric hæmorrhage. In the duodenal cases, almost always a large chronic ulcer is found, typically invading a vessel outside the duodenum. The history is usually positive. Fatal gastric ulcer however appears to vary from generation to generation and to some extent from land to land and from hospital to hospital. While the majority of deaths are always due to large chronic ulcers eroding vessels, in a variable minority no punctured vessel can be found and sometimes not even an acute ulcer or erosion. So much for the facts; now for the semi-facts.

I can find no adequate collected surgical records on this point, but throughout those periods of surgical history when operation "in the warm" was undertaken one finds the statement reiterated: No lesion found, or else multiple bleeding points discovered. Three weeks after bleeding has stopped the radiologists have their turn. Their records must be classed as only semi-facts, because the deep penetrating ulcer of the radiologist, so far from being a large ulcer, is usually a proof that the mucous membrane is in a sufficiently healthy state to invaginate a small pathological area into a protective diverticulum. A second fallacy of radiological records is to classify a highly irritable pylorus or duodenum as evidence of ulcer, when a history of gross bleeding is present. Taking the statistics for what they are worth, about half the survivors of a hæmatemesis show "positive" evidence of ulcer. This proportion is about the same in two London hospitals with a high mortality and in Meulengracht's clinic with its rate of 1 per cent. Gastroscopical facts must also be looked upon as only semi-facts. Gastroscopy has not yet outlived the reputation, which it acquired in the early days of primitive instruments, of being dangerous. No one up to the last few years was keen to gastroscope a bleeding patient who might die anyway. Of recent years a number of examinations have nevertheless been made though publicity has been avoided. I am aware that the patients gastroscoped were to some extent a selected sample, but I still think it fair to say that a bleeding ulcer is a rarity and that some form of hæmorrhagic gastritis, in which there may or may not be an ulcer, is the rule.

Leaving facts for theory, I suggest that under the heading of hæmatemesis we are dealing with two quite different conditions. The one, chronic ulcer with eroded vessel, has an enormous mortality; few survive. The other condition is a generalised one of the mucous membrane, presenting a number of very different gastroscopical pictures, the meaning of which is still not properly understood. This second condition has a negligible mortality. The second part of my theory, in so far as it is not a corollary of the first part, is a little more dashing, and at present I do not wish to marshal my evidence in favour of it. In my opinion, clinics which have bad results are getting more patients with the first condition, clinics with good results more with the second. Niceties of treatment make little difference.

Finally, Sir, this is, as Mr. Ogilvie likes to tell his surgical colleagues, an age of debunking. Let us be honest. The consultant is no more wise to treat a case of indigestion without gastroscopy than a skin specialist to treat an itch without looking at the skin. The problem of when to operate and when not to, in ulcer and in hæmatemesis, will be nearer solution when it is realised that gastroscopy is not a bizarre exotic method of reaching a diagnosis in atypical cases, but a quick safe comfortable method of determining in what way the mucosa is reacting. In one patient the radiological niche is a callous ulcer which will need years of care before the scar is sound. In another the niche is the result of a plastic protective mechanism for a minute ulcer, the scar of which will vanish in a few weeks. A third patient is having attacks of erosive gastritis. Ulcer diet may be entirely useless; why keep on with it? When our ideas of treatment cease to revolve round slops and alkalis, the patients will abandon the chemist's shop and return to the doctor, and if the doctor makes a mucous membrane diagnosis early in his connexion with the patient, he will rarely be in doubt as to what to advise if profuse bleeding occurs.

I am, Sir, yours faithfully,

Oxford, Dec. 12th. DENYS JENNINGS.

VALLECULAR DYSPHAGIA

To the Editor of THE LANCET

SIR,—Difficulty in swallowing produced by the lodgement of food above or at the sides of the epiglottis is now frequently described as "vallecular dysphagia"; generally with the implication that the condition is something newly recognised, instead of newly christened. The following description by the late Sir Barclay Baron (Bristol Med.-Chir. Jour., 1890, viii., 82) is instructive. It must be remembered that X ray examination was not then available.

> "In some of my cases . . . the food that lodged between the tongue and the epiglottis not only gave rise to an uncomfortable sensation, but caused a terrible feeling of impending suffocation, and the patient adopted severe measures such as making himself retch, in order to get rid of it. There is no doubt that the food crowded the epiglottis down towards the top of the larynx, and prevented its normal rise in order to get air into the lungs. Also, I suppose, it set up a reflex spasm which still more tightly shut the epiglottis down. One patient, a young man, was reduced to living mainly on liquids and very soft solids, and very little even of the latter could be comfortably taken; he was very weak . . . and had lost 40 lb. in weight when I first saw him, in spite of having been admirably treated by Dr. Mackenzie. . . . Other patients have come to me complaining of fullness in the throat, something always behind the tongue that cannot be dislodged. . . ."

The condition is obviously what we are now asked to call vallecular dysphagia.

I am, Sir, yours faithfully,

Clifton, Bristol, Dec. 10th. E. WATSON-WILLIAMS.

DENTAL FOLKLORE

To the Editor of THE LANCET

SIR,—I should be glad if your readers would help me in collecting examples of dental folklore, folk cures, and customs. Under the influence of our sophisticated age, many of these are dying out and it seems a pity that what are left should not be preserved as many of them have had a direct influence on professional history.

As examples of a few which still exist there is a common belief still current in many parts of the country that worms are the causative agent in dental caries. Again charms and periapts against toothache still have a vogue. The ritual disposition of shed teeth is common. These may be burnt with salt or put into a mouse hole, both of which methods are very old and have a wide distribution. The subject of "married man's toothache" is an interesting one as it is considered that this is a debased remnant of that strange custom of the couvade in which the father takes to his bed at the birth of his child and submits to certain taboos. There is possibly some relation between that belief and the idea which is fairly common that it is dangerous for a husband to have a tooth extracted during his wife's pregnancy.

The geographical distribution of these and other beliefs is an interesting study and it is hoped that as much information as possible either direct, from hearsay, or from early memories will be forthcoming. Nothing is too simple to be of interest and I should be extremely grateful for help.

I am, Sir, yours faithfully,

B. R. TOWNEND,

Senior Dental Officer, West Riding County Council.

Public Health Dept.,
County Hall,
Wakefield, Dec. 9th.

ŒSTRIN AND CANCER

To the Editor of THE LANCET

SIR,—Since we have advised therapy with œstrone and its derivatives, we feel that we must accept responsibility for this action; and if Dr. Hunt is correct in her surmise, our responsibility is grave. In so far as we are aware, Dr. Hunt has no immediate practical experience in this field of research. whereas the undersigned have devoted a considerable amount of time to the subject. Dr. Hunt first refers to the work of Lacassagne. We were convinced from our study of this worker's papers that he had not succeeded in producing adenocarcinoma of the breast in other than susceptible strains. In view, however, of Dr. Hunt's statement, we communicated with Prof. Lacassagne on this point. and received the following telegraphic reply which we reproduce with his permission: "Adenocarcinoma of the breast produced by œstrone only obtainable in susceptible mice." We trust that this statement from Prof. Lacassagne will set Dr. Hunt's mind at rest.

With regard to her plea that she has been unable to find standard methods, we would quote the following techniques for determining the physiological and therapeutic responses to œstrone:—

(1) The control of such symptoms of the menopause as hot flushes, which usually require quite small doses of œstrone by mouth: 1000 to 5000 international units.

(2) Response of the human vaginal smear to œstrone in cases of ovarian deficiency.

(3) The growth of the uterus in cases of uterine hypoplasia due to ovarian deficiency.

(4) The production of œstrone withdrawal bleeding in cases of amenorrhœa.

The statement made by one of us (E. C. D.) at a meeting, that kraurosis vulvæ is regarded by some as a precancerous condition, was made on the authority of Jellett and Wilfrid Shaw who both, in their respective text-books, refer to this condition as precancerous.

In conclusion, we would point out that our object throughout is to institute a substitution therapy in order to re-establish natural function, a procedure which we beg to submit has never resulted in ill.

We are, Sir, yours faithfully,

P. M. F. BISHOP,

Department of Endocrinology, Guy's Hospital;

E. C. DODDS,

Courtauld Institute of Biochemistry, The Middlesex Hospital.

Dec. 15th.

THE THYROTOXIC HEART

To the Editor of THE LANCET

SIR,—I am much interested in Prof. John Hay's lecture published in your last issue, and especially in the section dealing with thyrotoxic hypertension, in which he refers to the paper by Parkinson and Hoyle with that title.

If this term is taken to mean simply the association of hyperthyroidism and hypertension, it is, I believe, of common occurrence since masked hyperthyroidism and high blood pressure occur in the same age-group of patients, and both are common disorders. The term should not in my view be taken to imply that the hypertension is due essentially to the thyrotoxicosis—i.e., is a thyrogenic hypertension—at any rate in the present state of our knowledge. I submit that by the unqualified term hypertension is meant a raising of both systolic and diastolic pressures, and that this is not the case in hyperthyroidism where the systolic pressure alone tends to be high and where the diastolic is either unaltered or even slightly lowered. Furthermore, it has been my experience that where hypertension (with raising of both systolic and diastolic pressures) and hyperthyroidism coexist, removal of the thyroid gland (often with complete relief of symptoms) does not alter the diastolic pressure at all, and may have very little effect on the systolic reading. In my own series of cases of masked hyperthyroidism published in 1933, there were two cases with this association; in both removal of the thyroid cleared up all the symptoms and in both it left the diastolic pressure quite unchanged and the systolic a little lower only. I have had several similar cases since.

Where undoubted hyperthyroidism exists in a hypertensive patient, I believe that the hypertension is no contra-indication to operation, but is an added factor in its favour, since by thyroidectomy at least one burden can be removed from the heart.

I am, Sir, yours faithfully,

JOHN R. H. TOWERS.

Park-square, Leeds, Dec. 15th.

MORTGAGED PRACTICES

To the Editor of THE LANCET

SIR,—Our attention has been drawn to Messrs. Lee and Martin's letter in your issue of Dec. 12th in regard to the above matter. The British Medical Association desired that its members should be able to secure practice purchase loans which should be as free as possible from restrictive conditions, and British Medical Finance Ltd. was formed with this object in view. The company has endeavoured, so far as is reasonably possible, to make such loans available to doctors without certain of the provisions which are commonly required in other schemes of a similar nature. In addition, the company had in mind the advisability of making their scheme flexible and of reducing to a minimum the gross payments which the borrower would need to make. We are confident that the plan which the company has adopted is cheaper and less onerous than others which may be available; in fact, we are receiving many letters from doctors who have for themselves confirmed these points by a careful comparison of the different facilities which have been offered to them. Your correspondents do not mention what, after all, is one of the most important facts in regard to our scheme, and that is that the B.M.F. scheme offers by far the most advantageous facilities for practice purchase, no matter what the circumstances of the particular applicant may be and whether the application is for part or the whole of the purchase price. The question is, of course, one which every doctor must decide for himself, but we invite any prospective borrower who has obtained a plain statement of the total cost under another scheme to obtain a similar statement from us and to draw his own conclusions.

Reference is made by Messrs. Lee and Martin to their relationship with a particular insurance company. We would specially like to emphasise that under our scheme the doctor can place his insurance with *any* reputable company. Our sole function is the provision of the necessary finance by means of loans and no insurance commissions of any description are paid to us.

I am, Sir, yours faithfully,

D. CARMICHAEL,
Director.

Tavistock House South, Tavistock-square,
London, W.C., Dec. 15th.

GRAINS AND SCRUPLES

To the Editor of THE LANCET

SIR,—The "Grains and Scruples" in THE LANCET of Dec. 12th have certainly led your readers on a very pleasant ramble in medical history. "A Chronicler" tells us that the *Foreign Medical Review*, beginning in 1789, was the first serious representative of medical journalism, in comparison with a large number of such periodicals on the Continent at that period. The title certainly suggests the idea, still so often and so erroneously expressed, "they do things better abroad."

It is rather startling to find this familiar impression current 150 years ago. Immense developments have taken place since then, not only in all branches of medical science but in the related departments of treatment. I should not be surprised to learn that we could "give points" to our continental friends in almost any specialty, medical or surgical, not excluding countries where the healing art has been taken over by the State.

How is it that, as "A Chronicler" notes, there is still, at all events in the popular mind, something like an inferiority complex in the matter of the health resorts? Why does the old criticism still crop up wherever medical confidences are exchanged and even in British consulting-rooms? In nearly all departments of special practice—ophthalmology, orthopædics, tropical medicine, radiology, and a host of others—our best men are international figures, and, like Michael Angelo, they "can do what can be done."

Can it be, perhaps, that the science of the health resort is imperfectly appreciated in England because it is nowhere taught? In some continental countries gallant efforts have been made during the last 20 years to put the elements of what may be termed for brevity climatology into the minds of medical men, students, graduates, and post-graduates, by lectures and practical demonstrations at the spas. Similar and hopeful efforts to establish this teaching at the University of London were frustrated by the outbreak of war in 1914.

The British spas cannot have all the natural advantages which assist the therapeutic power of certain of the springs abroad. But they form a group of tonic and invigorating spas, large and small. They can do much to meet the needs of patients suffering from most of the maladies for which spa treatment is known to be efficacious. And, incidentally, those who resort to British waters save time and trouble and money and are not subjected to a change of doctor. The uncomfortable counsellor may think that not *all* is for the best. Many special methods used at continental spas are not to be found in this country. For dry inhalations and hyperthermal flowing foot-baths with their special technique, for sedative pools and the arm-bath at rising temperature (see THE LANCET, 1935, i., 984), it is necessary to go abroad.

But if it is still true that they do some things better abroad, they do some worse. It was a German physician who claimed: "You have come just in time, but by the mercy of God I will cure you," and, more recently, an Italian who when asked "What if the rheumatism should come back?" replied, "You must come to me every year for four years." And what shall we say of the enthusiastic practitioners who send the patient home to England with directions for treatment for twelve months to cover the time till their next visit?

I am, Sir, yours faithfully,

London, Dec. 14th

R. FORTESCUE FOX.

VITAMIN C AND JUVENILE RHEUMATISM

DR. LESLIE J. HARRIS in a letter dated Dec. 12th from the Nutritional Laboratory, Cambridge, writes: "In the paper by Abbasy, Gray Hill, and myself in to-day's issue of THE LANCET, pressure on your space necessitated the omission of our detailed tables of results. Incidentally, and by an oversight, this has led to the exclusion of a piece of information which may be needed by those technically interested—namely, that the test doses referred to in Fig. 2 were given at the level of 700 mg. per day per 10 st. of body-weight."

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

VOCATIONAL TESTS FOR MEDICAL STUDENTS

AT Edinburgh as in many other medical schools a choice has to be made among the numerous aspirants to a medical career. The question has arisen whether useful assistance could not be given to the authorities by mental tests that would reveal vocational abilities. This is a question that can only be answered by trial, and some time ago, at the request of the medical faculty, Prof. James Drever, of the chair of psychology, and Prof. Godfrey Thomson, of the chair of education, undertook to test students on entry and check their findings by the same students' subsequent performance. Prof. Thomson gave a general intelligence test—Thorndike's C.A.V.D. test—which had been standardised on American students, and Prof. Drever gave an ad-hoc test which was intended to be vocational and more or less specific to those capacities which seem to be essential for success in medicine. The test could not be made compulsory, and consequently only 150 students sat for Prof. Thomson's test, and 100 for Prof. Drever's. Since the intention is to compare the performance in these tests with the success or otherwise of the students in the course, five years must elapse before it is possible to determine how far such tests can be helpful. Up to the present time only the results of the first and second professional examinations are available, and the results of the first alone have been compared with the results of the tests. Needless to say, their real value can only be assessed when the performance of the students in the really professional subjects and courses is available.

PUBLIC HEALTH

A New Hospital for South London

At its meeting last Tuesday the London County Council decided to prepare details and estimates of cost for a new hospital to be built south of the Thames. Land is available within the precincts of St. Benedict's Hospital, Tooting, which serves the metropolitan boroughs of Wandsworth and Battersea where precisely the need is most urgent for additional beds. Year by year since 1930 the number of admissions and patient-days has steadily grown, rising (at the eight acute general hospitals south of the Thames) from 51,149 admissions and 1,964,163 patient-days five years ago to 60,600 and 2,004,752 respectively last year. On behalf of the hospitals committee Mr. Somerville Hastings remarked on the steadily increasing demand for admission to municipal hospitals in London, due, he believes, to the removal of the repressive taint of the poor-law and the policy of progressive improvement in the service. Actually, too, the length of stay of the patients in L.C.C. general hospitals is being shortened, the reduction being on the average 3·1 days (from 36 to 32·9) between 1931 and 1935. For several reasons it is impossible to keep all the beds fully occupied, and every improvement in classification is a further potential source of empty beds. The peak occupation comes in the first quarter of the year; this year there was a plateau of over 90 per cent. occupation for nine consecutive weeks. Since there rests on the L.C.C. a statutory obligation to admit every patient in need, extra beds must then be installed in wards already fully occupied—a highly unsatisfactory expedient. Infectious disease and quarantine put 2 per cent. of the total beds out of commission, and one-ninth of the beds are closed each summer for cleaning, painting, or redecorating.

The decision to build a new hospital has only been taken after other ways of relief have been tried—e.g., a new ward block of 129 beds at St. Nicholas' Hospital, 353 additional beds in new ward blocks at St. James' and Lewisham Hospitals, and the release of St. Benedict's Hospital for the chronic sick. But when all these beds have been provided it will still not be possible to carry out the standards for bed spacing in wards approved last year.

Midwives' Salaries under the New Act

Under the terms of the Midwives Act, 1936, local authorities are required to submit proposals to the Minister of Health by the end of next month. The Glamorgan health committee is understood to be offering to trained nurses with the C.M.B. diploma a salary of £150 × 10–£200, with £8 uniform allowance together with travelling expenses, an allowance of £5 a year for a telephone, and admission into the superannuation scheme. For midwives who are not trained nurses, a scale of £120 × 10–£150 with similar allowances is suggested. They will of course be provided with all necessary equipment. The suggested conditions of service include four weeks' holiday in the year, one day off a week, and one week-end a month. The average salary paid to health visitors in the Glamorgan districts is £183 per annum. These proposals are subject to consultations with midwives' representatives, welfare councils, and voluntary associations, as well as to the Minister's comment when the scheme is submitted. Miss E. M. Pye, president of the Midwives Institute, has written to the *Times* suggesting that the terms are unlikely to attract educated professional women into the new service.

Small-pox in Oldham

Four further cases of small-pox have been notified in Oldham, the last on Dec. 11th, all of them contacts of the original case. Two are neighbours, a mother aged 40, and her daughter aged 14, both unvaccinated. The other two are also neighbours, one a male aged 63, the other a female aged 54; both were last vaccinated in infancy. All the cases are progressing favourably.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED DEC. 5TH, 1936

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 2 (Oldham); scarlet fever, 2155; diphtheria, 1541; enteric fever, 20; pneumonia (primary or influenzal), 789; puerperal fever, 35; puerperal pyrexia, 110; cerebro-spinal fever, 15; acute poliomyelitis, 12; acute polio-encephalitis, 1; encephalitis lethargica, 4; relapsing fever, 1 (Newent R.D., Glos.); dysentery, 19; ophthalmia neonatorum, 63. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Dec. 11th was 3145, which included: Scarlet fever, 1089: diphtheria, 998; measles, 10; whooping-cough, 358; puerperal fever, 13 mothers (plus 7 babies); encephalitis lethargica, 287; poliomyelitis, 4. At St. Margaret's Hospital there were 12 babies (plus 3 mothers) with ophthalmia neonatorum.

Deaths.—In 122 great towns, including London, there was no death from small-pox, 1 (0) from enteric fever, 8 (0) from measles, 2 (1) from scarlet fever, 18 (2) from whooping-cough, 44 (3) from diphtheria, 45 (16) from diarrhœa and enteritis under two years, and 43 (3) from influenza. The figures in parentheses are those for London itself.

Salford reported the only death from enteric fever. Hull, Stoke-on-Trent, and Ipswich each had two deaths from measles; Bolton, Liverpool, and Sunderland each two deaths from whooping-cough. Fatal cases of diphtheria were reported from 25 great towns, Hull and Manchester each 5, Dagenham and Bradford each 3.

The number of stillbirths notified during the week was 237 (corresponding to a rate of 37 per 1000 total births), including 41 in London.

Fellowship of Medicine and Post-Graduate Medical Association.—On Saturday, Jan. 2nd, a demonstration on pulmonary tuberculosis will be given at the Preston Hall Sanatorium, and if sufficient entries are received it will be repeated on Saturday, Jan. 9th. On Tuesday, Jan. 5th, at 8.30 P.M., Mr. R. Lindsay Rea will give a demonstration on the fundus oculi. From Jan. 4th to 31st there will be an afternoon course (open to non-members) in dermatology at St. John's Hospital. A course of surgical tutorial classes for F.R.C.S. (Final) candidates will be given at the National Temperance Hospital on Tuesdays and Thursdays at 8.30 P.M. from Jan. 12th to March 4th. An all-day post-graduate course in advanced urology will be given at St. Peter's Hospital from Jan. 18th to 30th, and a course in cardiology (open to non-members) at the National Hospital for Diseases of the Heart from Jan. 11th to 16th. Detailed syllabuses of all courses can be obtained from the secretary of the Fellowship, 1, Wimpole-street, London, W.1.

OBITUARY

ARTHUR LEGGE ROE, L.R.C.S. Irel.

Mr. Arthur Legge Roe was born at Haulbowline, Ireland, and received his medical education at Queen's College, Belfast, and the Royal College of Surgeons in Ireland, where he acted as demonstrator in anatomy at the medical school. He held for a time a commission in the Royal Navy, served on H.M. ships *Research* and *Northumberland*, and was for a time on the surgical staff of the Royal Naval Hospital, Plymouth. On retiring from the Service, he commenced a successful career as an ophthalmic surgeon in Hull. From 1906 to 1914 he was honorary assistant ophthalmic surgeon to the Hull Royal Infirmary, becoming full ophthalmic surgeon from the latter date until his retirement in 1932. He was widely known in the district for his operative skill, was an ex-president of the Hull Medical Society, and made practical clinical contributions to our own columns and those of the *British Medical Journal*. He was 82 years of age at the time of his death, which occurred at the home of his daughter in Southport.

KELBURNE KING GRIEVE, M.B., Ch.B. Edin.

WE regret to record the death of Dr. Kelburne Grieve, which occurred at Accra on Nov. 11th, where he was on duty as deputy-director in the Colonial Medical Service on the Gold Coast. The son of Dr. Robert Grieve, at one time surgeon-general in British Guiana, Kelburne Grieve was born in 1883, and received his medical education at Edinburgh University, where he graduated as M.B., Ch.B. in 1906. He held a resident appointment in the Royal Infirmary, Worcester, and engaged for a time in general practice, but in 1913 he joined the West African Medical Staff as medical officer in Nigeria. During 1915 he served in the Cameroons as temporary lieutenant, being wounded and mentioned in dispatches. He became senior medical officer in the Colonial Medical Service in 1927, and, on accelerated promotion, was appointed deputy-director and transferred to the Gold Coast in 1933.

Dr. Grieve married a daughter of Dr. William Bell of Wallasey, sister of the late Prof. Blair-Bell, the distinguished gynæcologist, and his death occurred with tragic suddenness. He was being partnered by his wife in a tennis tournament when he collapsed and died on the court.

Dr. King, Director of the Service, writes: "Dr. Grieve was a most able and conscientious officer with marked ability for administration. A great deal of his work during his last few years concerned African staff by whom he was held in the greatest affection and respect for his genial and kindly nature, and for the unvarying patience and fairness with which he formed his decisions."

HENRY WILLIAM SEXTON, M.R.C.S.

Dr. Henry William Sexton, whose death occurred at the beginning of the month, was the senior assistant school medical officer for West Norfolk. He was educated at the City of London School where he was a prominent athlete, received his medical training at St. Thomas's Hospital, and qualified in 1902 as M.R.C.S. Eng., L.R.C.P. Lond. He served as house physician to the hospital, and later went into practice at Rochester, where he remained in practice until, in 1920, he received his appointment at Lynn. Throughout the district he became well known for the care and energy with which he discharged his duties in the various schools, and those who came into contact with him, both professionally and privately, regret his death in middle age, which occurred almost suddenly from pneumonia.

ARTHUR GRUFFUDD OWEN, M.D. Liverp.

Dr. Arthur Owen, who died on Dec. 5th, was educated at the North Wales University College, Bangor, where he followed classical studies. He later proceeded to the University of Liverpool for his medical training, and graduated in honours as M.B., Ch.B. in 1909, proceeding to the M.D. degree two years later. He was a distinguished student, gaining the gold medal in gynæcology and obstetrics and the Holt scholarship in physiology. He was appointed senior resident medical officer at the Northern Hospital, Liverpool, and then went into practice at Birkenhead. During the war period he served with the Expeditionary Force at Salonika, but at the end of hostilities returned to his practice at Birkenhead and became a prominent member of the Merseyside Welsh community. His death occurred at the age of 55 in sequence to a surgical operation.

EDWARD BACH, M.B. Lond.

THE death is announced of Dr. Edward Bach, which occurred on Nov. 27th in a nursing-home at Didcot. He received his medical training at Birmingham and University College, London, and graduated as M.B., B.S. Lond. in 1913. He was for a time demonstrator of bacteriology at University College Hospital and casualty medical officer, and at the London Temperance Hospital he was casualty house surgeon. He later became bacteriologist to the London Homœopathic Hospital, and in association with Dr. F. H. Teale published in the *Proceedings* of the Royal Society of Medicine some suggestions upon anaphylaxis, bacterial toxæmia, and allied subjects. Some three years ago he gave up bacteriological work to conduct an inquiry into practical herbalism at Sotwell, near Wallingford. He was 50 years of age.

THE LATE DR. THOMAS BERRY

Dr. Knyvett Gordon writes: "May I add a few lines to the obituary notice of Dr. Thomas Percival Berry published in your issue of Nov. 28th? As consulting pathologist to the G.W.R. Clinic I was closely associated with him for fourteen years and had a great admiration for his administrative work as chief medical officer. He always took the view that medicine and pathology were inseparable and our consultations were frequent and to me very helpful. For his transparent honesty and singleness of purpose all of his colleagues had a sincere admiration. To sit in his consulting-room and watch the faces of his patients light up as they entered was to me an education, for he was a keen and successful psychologist and never hurried or brusque. He practically died in harness."

THE LATE MR. E. S. WEYMOUTH

THE death is recorded of Mr. Edward Sprague Weymouth, head of the University Examination Postal Institution, through whose hands many members of the medical profession passed in the course of their studies, both undergraduate and post-graduate.

We have received the following notes of his life from Mr. Martin Oldershaw: "Mr. Edward Sprague Weymouth died in St. Paul's Hospital, Endell-street, on Dec. 2nd, six days before his eightieth birthday, after a short illness. As recently as Nov. 12th he was at work as usual in his room at the medical coaching institution which he founded over fifty years ago, and which has helped so many generations of medical students and practitioners to meet their examiners with success.

"The second son of the late R. F. Weymouth, head master of Mill Hill School, he was brought up in a strict Free Church environment and throughout his life he remained of simple, almost ascetic personal habits. His work brought him into contact with men in every branch of medicine, scattered throughout the world. A morning's work might include letters from a medical missionary in China, anxious to obtain the fellowship of a college during his next leave; from the medical officer to a rubber company in Malay inquiring about the diploma in tropical medicine; and from a country doctor in the west of Ireland, wondering if he could collect material from his scattered practice for an M.D. thesis. Weeks, or months, later, the writers might call in person to talk over their problems. All received accurate information and friendly advice as to the most suitable course of action.

"I last saw him a few hours before he died, when the kindly drowsiness of a terminal uræmia was swiftly enfolding him. He knew me, and as I shook his hand in farewell, roused to ask the question he must have asked me a score of times when parting—'All well at home?' His death removes a unique and most likeable personality in the medical life of London, and he will be much missed."

PANEL AND CONTRACT PRACTICE

L.P.M.S. Extension

THE extension of the London Public Medical Service to which Dr. Alfred Cox calls attention on p. 1487, comes into operation on Jan. 1st, 1937. Its main features may be summarised thus:

WHAT THE SERVICE OFFERS

On payment in advance of the appropriate premium the subscriber is entitled, immediately after the first payment is made, to attendance at the doctor's surgery, or at home, as required, and usual medicines; also to an annual overhaul if this should be desired.

The service gives a general practitioner service, that is, the services which are rendered in the ordinary course of practice by the family doctor, and in exactly the same way.

It does not include attendance at confinements, operations requiring a general anæsthetic, operative dentistry, the administration of a general anæsthetic, vaccination, special certificates or reports, appliances (such as trusses), special examinations (X ray, bacteriological), or specially expensive drugs and dressings. All these things are extras in ordinary private practice.

HOW TO ENTER

The proposer must apply to his usual doctor, who may be a member of this service, or not. If not, he may be willing to join if he finds his patients wish to become subscribers. The entrance form and declaration of present state of health must be signed, and, after being accepted and signed by the doctor, must be sent by the proposer to the L.P.M.S. office with the first quarter's (or half-year's) subscription.

If the doctor selected is not a member of the service, and does not care to join it, the subscriber can still get certain benefits by joining it. The moneys subscribed by such persons will be placed in a pool (called the "non-coöperating practitioners' fund") from which contributions to any doctor's bills (within the scope of the service) will be paid in proportion to the claims on the pool, on production by the subscriber of a receipted bill from his doctor. If the total sum in the pool is insufficient to meet the full charges set out in this scale, the council of the service will pay the accounts subject to such percentage deductions as are necessary.

CHANGE OF DOCTOR

A subscriber can change his doctor at any time, and may transfer to any other doctor willing to accept him. No transfer can take place if the subscriptions are in arrear.

SUBSCRIPTIONS

Each subscriber is provided with a card on which the receipts for subscriptions are entered. Production of the fully paid card entitles the subscriber to the services of his own doctor, or such substitute as that doctor may provide in an emergency. The contributions of subscribers are adjusted to their income according to the following scale.

Class I.—Income between £250 *and* £375

No. in family.	Subscription.	No. in family.	Subscription.
1 ..	£1 10s. per annum	4 ..	£4 0*s.* per annum
2 ..	£2 10*s.* "	5 or more	£4 10*s.* "
3 ..	£3 10s. "		

Class II.—Income between £375 *and* £475

1 ..	£2 0*s.* per annum	4 ..	£4 10s. per annum
2 ..	£3 0*s.* "	5 or more	£5 0*s.* "
3 ..	£4 0*s.* "		

Class III.—Income between £475 *and* £550.

1 ..	£2 10*s.* per annum	4 ..	£5 0*s.* per annum
2 ..	£3 10*s.* "	5 or more	£5 10*s.* "
3 ..	£4 10s. "		

REIMBURSEMENTS

Contributions from the non-coöperating practitioners' fund are made on the basis of the following scale:—

	s.	*d.*
Visit and medicine for two days	5	0
Each intermediate visit in dangerous cases	3	6
Attendance at surgery and medicine for two days ..	3	6
Visit in urgent or dangerous cases between the hours of 8 P.M. and 8 A.M. (with medicine)	7	6
Attendance at surgery in urgent or dangerous cases between the hours of 8 P.M. and 8 A.M. (with medicine)	5	0

A Partnership Agreement Challenged

An insurance committee recently received a draft copy of a proposed partnership agreement between two insurance practitioners and took the view that certain clauses of the agreement did not comply with the terms of service. The clause to which the chief objection was taken runs as follows:—

> "And whereas the parties hereto have agreed to carry on their respective practices in partnership, but only in so far as such practices are concerned with the attention to and treatment of persons upon the respective panels of the parties hereto for the period and upon the terms and conditions and under and subject to the provisions hereinafter contained . . . Dr. A and Dr. B will be and continue partners in the business of general medical practitioners

in so far only as such practices are concerned with the attention to and treatment of persons upon their respective panels."

This clause, the committee felt, limited the scope of the partnership to panel cases only, and therefore did not fulfil the conditions of Clause 11 (8), which requires the whole of the practice of the partners to be taken into account. Another clause to which objection was taken provided that the business of the partnership should be carried on under the style or firm of Dr. A at one surgery, of Dr. B at a second surgery, and under the joint names of the partners at such other surgery and consulting room (accessible to either) as should be agreed upon by the partners. The Ministry of Health ruled that there was no legal objection to practitioners entering into a partnership with respect to their insurance practice exclusively, and that in the case of such a partnership the word "practice" in Clause 11 (8) had reference to the insurance practice only. As regards surgery and waiting-room accommodation the committee had only to be satisfied that the arrangements proposed were reasonably adequate to secure continuity of treatment.

PARLIAMENTARY INTELLIGENCE

STANDARD OF ARMY RECRUITS

In the House of Commons on Dec. 9th, on a motion urging the Government to take every possible step to secure the necessary voluntary recruits for the defence forces, Mr. Palmer said that when housing conditions, food, opportunities for amusement, and the use of leisure were on the up grade, it was clear that the Army must increase its standard of life to compete with the civil standard.—Mr. Anstruther-Gray urged that the period of service should be shortened. The brigade of Guards, he said, never had any difficulty in getting recruits in spite of the fact that their height standard was 5 ft. 10 or 5 ft. 11. This was, he thought, largely due to the fact that the brigade was enlisted for only four years instead of seven, and that if they went abroad it would be only for one or two years. The War Office should undertake to frank the National Health Insurance cards on behalf of employers and employees in respect of every man who served in the Territorial Force. If the cost was £4 6*s.* 8*d.* per head the benefit to the employer would be equivalent to the week's wages he had to pay his man when he was training.

Sir Arnold Wilson said that 80 per cent. of those who joined the army came out of direct employment. It was not made easy for them when the recruiting offices were closed at 5 or 6 P.M., and men could not be medically examined after 3 or 4 P.M. There should be a single regional recruiting office for all the three services with a medical staff at each office. The present medical tests ought to be reconsidered in view of the real needs of the services. There ought not to be a uniform standard for every unit and every part of every unit. Possibly from 5 to 10 per cent. of the men in every unit must always be employed on menial duties. Why not a special medical standard for them? The majority of recent rejections had been for defective teeth; that was really a reflection on army diet—which was wholly unjustified. Army diet was not what it used to be; even in the field to-day soldiers rarely got "hard tack." The requirement in regard to teeth was out of date. He had known half a score of men rejected as recruits on health grounds who had been engaged in hard and continuous physical labour ever since with never a day's illness—men of whom any army would be proud. A few weeks ago he endeavoured to get a man into the navy. He was a fisherman, physically a magnificent specimen, and he wished to become a stoker, but he was rejected on the ground that he was colour blind. The man could distinguish ordinary colours as easily as he could, but he failed to pass a difficult test with lights which might be necessary for signallers or able seamen, but could hardly be necessary for a stoker. A number of the other tests seemed to him very drastic and not very intelligent, and he suggested a comprehensive civil inquiry into the whole working of these tests. There ought to be some elasticity in the case of a man with only one defect. The state of the barracks both abroad and at home had long been a source of criticism in reports on the health of the army; half a dozen cases had been reported officially of barracks which were positively verminous.

THE WAR SECRETARY'S REPLY

Mr. Duff Cooper said he did not pretend that the conditions in the army to-day were satisfactory, but he hoped to be able to make them so. Since the war successive Governments had been pledged to a policy of disarmament, and it was a first necessity to present in every succeeding year diminished defence estimates. In view of the feeling not only in the House of Commons but also in the country it would have been almost impossible to justify an increase in expenditure. During the period of economy the Army Council and the Board of Admiralty naturally concentrated on the things which they thought were essential to the safety of the country, and allowed the other things which were important for the comfort of the men to go by the board. To-day, therefore, they were faced with a great and rapid advance in the re-equipment of the fighting services with the necessity of rapid and great improvement in the conditions under which the men lived. A Cabinet committee was sitting upon this question, and he hoped in the near future to be able to report how conditions might best be improved. As to the question of the medical tests, there had recently been an inquiry by the War Office, and they had arranged the men into four categories with a lower medical test for those who were not required to carry out the harder tasks. That would, he hoped, enable them to obtain many recruits who might otherwise be rejected. In the barracks now being built they were doing everything they could to improve the lighting and the general comfort.

NOTES ON CURRENT TOPICS

Protection against Gas Attack

In the House of Lords on Dec. 3rd the Earl of Halsbury asked what protective measures the Government were providing against an air attack on large cities by poison gas. Gas masks, he said, were of no value. We do not know what gas will be used in the next war and therefore cannot design any mask to give protection against it. He scouted the idea of making houses gas-proof; that could be no more than a palliative for a short time. Poison gas being heavier than air would go down a channel on the same principle as water will; through London poison gas would follow the channel between Hampstead and Tottenham on the north and the Surrey hills on the south. The idea that a gas attack would not carry far was false; in 1917 the gas canalised up the Suippes valley and killed men thirty miles away. When a few years ago a poison-gas factory in Hamburg blew up a north wind carried the gas up the Elbe and people were killed in the ravines of Fischbeckeheide 35 miles away. A gas attack on London would mean a wave of death right through the city, and 40 tons of gas would put the whole of London under a lethal atmosphere 30 feet high. The whole of the town would then be obliterated without hope.

The Marquis of Dufferin and Ava said that while the Geneva gas protocol of 1925 abolished the use of gas in war time and while the Government hoped that resort would never again be had to gas, the risk could not be disregarded. But much of what Lord Halsbury had said was exaggerated. The majority of houses could be made gas-proof by simple devices such as wet newspaper over the window cracks and brown paper across the fireplaces. Respirators, which were to be issued free of charge to any person who could conceivably be in danger, would provide protection against any known form of gas. The filtering material consisted of activated charcoal to absorb true gases and a pad to stop arsenical and other toxic vapours. The only difference between the Service and the civilian respirator was that the former would last rather longer. He scouted the bogy of an unknown gas passing these respirators. Their production would soon reach half a million a week and to prevent deterioration they were being kept in store until needed. A protection service by trained chemists was being organised; they would pick out the danger areas and decide in order of priority which should first be decontaminated. Police, fire brigades, first-aid parties, and other services were all getting training at the anti-gas school at Falfield, Gloucester, where the accommodation had just been doubled. It was, he said, mischievous and ridiculous to suggest that 40 tons of gas could exterminate London; it was like suggesting that a million men could be exterminated with a million bullets.

The Earl of ONSLOW also deprecated over-estimating the danger, although it must not be ignored. "If you say that the whole of London will be destroyed in an afternoon, people will ask: then what is the good of trying to protect ourselves? If you ignore the danger people will not set to work to learn how to protect themselves from it." In any case there must be rehearsals beforehand; otherwise precautions would be useless. He was aware of another danger, but this was a military matter. He doubted whether the training now available for manning anti-aircraft searchlights was at all adequate.

Lord HALSBURY denied from actual experience the possibility of making a room gas-proof by putting damp newspapers over the crevices. When you are dealing with a gas whose lethal dose is 1 in 5 million you cannot, he said, afford to leave the tiniest crevice open. He had tested the respirators made with activated charcoal and had found that they did not keep out methyl arsine. In reply to Lord Dufferin's analogy, there was, he said, this difference between gas and bullets. The gas goes on by itself without hitting anybody but gradually taking victim after victim.

Lord DUFFERIN interposed that the masks are particularly good against methyl arsine. Lord HALSBURY said he would like to see the mask that was.

Turning to decontamination, Lord Halsbury said that mustard gas would hang about any sort of soil for weeks on end, no matter how you tried to get rid of it; and although it was one of the most annoying it was not one of the worst of poison gases. He added a word about the "fool idea" that a person suffering from gas ought to walk to the nearest station to get first aid; the number of phosgene cases that did that in the war and dropped dead on the doorstep was appalling. He concluded with repeating his conviction that the only protection from air attack was to do to others what they would desire to do to us, and to do it first.

National Parks

In the House of Commons on Dec. 9th Mr. MANDER urged the Ministry of Health to include in its new national health crusade the preservation of the countryside and its amenities, including the reservation of areas of natural interest against disorderly development and spoliation.—Mr. R. S. HUDSON said that the committee of 1931 had come unanimously to the conclusion that this country was not suitable for the institution of national parks such as those in the United States, Canada, or South Africa. What they had in mind could better be achieved if development was controlled and steps were taken to prevent spoliation by building. They suggested that the best means would be the granting to local authorities of much wider powers than they enjoyed under the then existing Town Planning Act. The wider powers suggested were in fact given to local authorities in the Act of 1932, and the practical question which the House had to ask itself was whether those additional powers were being made use of to achieve the purpose in view.

As regarded national reserves, planning schemes were, he said, either in operation or under active preparation for the Lake District, the Broads, and for parts of the coast lines of Lincolnshire and Pembrokeshire. A committee was on the point of being set up for Snowdonia and the Forest of Dean was actually being dealt with. As regarded the regional reserves, the High Peak district, Cannock Chase, the Forest of Bowland, and a large area of South Devon, including parts of Dartmoor, were already being dealt with. A considerable area round London had already been dealt with. Under the Town and Country Planning Act local authorities had power to include any place of natural beauty, or whose amenities required to be preserved on a scheme, and the Act applied to all areas whether they had been developed or not. Little had been done in the way of planning in Wales, but the House would realise that the need was not so urgent in Wales, because little or no development had actually taken place or was in contemplation.

In addition to the purely town planning activities of the local authorities a great deal, said Mr. Hudson, was being done in the way of extending open spaces and playing fields. The National Playing Fields Association had said that in their view a reasonable standard would be the provision of five acres of public open space per 1000 of a town's population. Fifteen of the great boroughs and corporations of England with populations exceeding 200,000, such as Birmingham, Bradford, Cardiff, Nottingham, Liverpool, and so forth, covered a total population of just about 6,000,000. They were shown at present as having open spaces under the control of their councils amounting to just over 20,000 acres. That represented about three and one third acres per 1000 of their populations. That was not perfect, but it meant that considerable strides had been made towards the figure suggested by the Playing Fields Association. Loans for the acquisition of land had been sanctioned as follows: 1927, £527,000; 1928, £707,000; 1929, £615,000; 1930, £979,000; during the period from 1931 to 1933 the figures dropped owing to financial and economic difficulties, but in 1934 they leapt up again to £961,000. Last year the amount sanctioned was over £1,000,000.

Those figures, said Mr. HUDSON, showed that local authorities during the past few years had been active in acquiring additional open spaces, and they showed the extent to which public opinion had been effective in this important aspect of the work of local authorities. In addition the National Trust owned some 60,000 acres, and there was the not unimportant item of 1,600,000 acres of commons. He hoped that the example of London, Surrey, and Middlesex, not to mention Hertfordshire, Essex, Kent, and Bucks in regard to the Green Belt would be followed by large county councils surrounding some of the more important industrial towns in the Midlands and the North. He was informed by the Southern Railway that within the last 12 months 25,000 people had left London on a Sunday to take advantage of the conducted rambling tours, quite apart from the many thousands who left on Saturdays and other days with cheap tickets.

It was hardly necessary for him to say anything about the physical advantages of open spaces. Doctors might disagree on many subjects, but they agreed that there were three fundamental advantages of open-air exercise over indoor exercise. The first was the great stimulus it gave to the "energy output" of the body. The second was the freedom from dust. The third, and probably the most important advantage in view of the increased strain of modern life which tended to be lived more and more indoors in offices, workshops, and factories, lay in the complete and stimulating change of taking exercise out of doors which was bound to have a first-class psychological effect. He did not think they could over-emphasise the effect on the health of the people of being able to give them plenty of opportunities for exercise in the open air.

The Manufacture of Insulin

On Dec. 15th, in the House of Commons, Lieut.-Colonel COLVILLE, Financial Secretary to the Treasury, moved two resolutions imposing new customs duties on imports of foreign beef and veal. He explained that it was proposed to exempt sweetbreads from duty under the resolutions. There was an important reason behind that. A considerable part of our imports of sweetbreads were used as the raw material for the manufacture of insulin. Insulin was imported free of duty, and it was desired that that exemption should also extend to the raw material for the manufacture of insulin in this country. As insulin was at present imported free, it would be appropriate that the raw material should come in without duty.

The first resolution was carried by 205 votes to 123 and the second by 213 votes to 123.

QUESTION TIME

WEDNESDAY, DEC. 9TH

Scottish Pensioner and a Hearing Aid

Mr. STEPHEN asked the Minister of Pensions if he was aware that Mr. Alexander Bouik, late 989, Scottish Rifles, 315,148, Royal Army Medical Corps, was refused electrical hearing aid from the Ministry while resident in Glasgow; that such treatment was granted to him when later he was resident in the London area, but that on returning to Glasgow he was informed by the local area officer that it was not permissible to renew the aid-to-hearing appliance supplied to him in April, 1934; that he was receiving a smaller disability pension than similar cases in the southern area; and whether he would set up a committee of inquiry to ensure that more uniform treatment was afforded to pensioners throughout the country.—Mr. H. RAMSBOTHAM replied: There is no difference in the Ministry's practice as between one part of the Kingdom and another. Mr. Bouik is in receipt of pension of 30 per cent. which is in fact the average rate of pension for his disablement. With regard to the particular complaint, the facts are that no electrical instrument suited to Mr. Bouik's case was available in 1920 when his defective hearing was originally attended to in Glasgow. The first application for such an instrument was only made by him in 1934, when he was duly supplied with one. A new instrument, which the pensioner had requested, to replace one so recently supplied as in his case, is not issued if the existing one is susceptible of repair, and following his further representations the present appliance was called up for examination a week ago and the necessary repairs put in hand.

National Health Propaganda

Sir NICHOLAS GRATTAN-DOYLE asked the Minister of Health whether he had considered the scheme submitted to him for a national campaign of health propaganda to be financed by insurance companies and approved societies; and whether he had arrived at any decision on the matter.—Mr. HUDSON, Parliamentary Secretary to the Ministry of Health, replied: My right hon. friend is aware that such a suggestion has been made, but no proposals for a national campaign have been made to him by insurance companies or approved societies. The general question of health propaganda is now receiving the consideration of my right hon. friend.

THURSDAY, DEC. 10TH

Unemployment Relief Scales and Nutrition

Miss RATHBONE asked the Minister of Labour whether the scale of assistance laid down in the regulations of the Unemployment Assistance Board had taken into account the cost of a minimum diet necessary for health, as estimated by the nutrition committee of the British Medical Association or by any other scientific authority and the cost of other primary needs; and, if not, upon what other considerations the scale had been fixed.—Mr. ERNEST BROWN replied: I am satisfied that in drafting the regulations which have recently come into force with the approval of this House the Unemployment Assistance Board had regard to the considerations referred to by the hon. Member.

Miss RATHBONE: Is the right hon. gentleman aware that the actual determination falls short of minimum subsistence needs as estimated whether by the British Medical Association or by other authorities by amounts which became more and more substantial according to the number in the family and in what sense, therefore, have these estimates been considered?

Mr. BROWN: I must have notice of that question.

Mr. G. GRIFFITHS: Is the right hon. gentleman aware that the Secretary for War has decided to change the diet in the Army and will he change the diet out of the Army?

Milk in Schools Scheme

Mr. W. ROBERTS asked the President of the Board of Education whether any children in schools were being supplied with preserved instead of fresh milk.—Mr. OLIVER STANLEY replied: It is estimated that about 5 per cent. of the children receiving milk in the schools are supplied with preserved milk in some form or another. Preserved milk is not provided under the milk-in-schools scheme.

Mr. ROBERTS: In view of the fact that some types of preserved milk have a much lower food value than fresh milk, will the Minister draw the attention of the local authorities concerned to that fact?

Mr. STANLEY: In the great majority of the cases in which preserved milk is supplied it is as the result of a voluntary arrangement carried on by the teachers. In the few cases where it is supplied by local authorities the Board try actively to discourage them, provided that there are supplies of fresh milk available.

Maternal Mortality

Mr. LUNN asked the Minister of Health what action, in addition to the Midwives Act, is being undertaken by his department to reduce the large percentage of maternal mortality in the country.—Sir KINGSLEY WOOD replied: I would refer the hon. Member to the annual report for 1935 of the Chief Medical Officer of my Department recently published, which contains in the section relating to maternity and child welfare a summary of the action taken by my Department both by way of investigation into this problem and by way of administrative action for the improvement of maternity services. Further measures it may be desirable to take will be reviewed when I have before me the report now in course of preparation of the special investigations recently made into maternal mortality in various parts of the country.

Mr. LUNN: Will copies of that document be available for members of this House?

Sir KINGSLEY WOOD: Yes, Sir; I shall make them available.

TUESDAY, DEC. 15TH

French Polishers and Dermatitis

Mr. GRAHAM WHITE asked the Home Secretary if the inquiry in the prevalence of dermatitis among french polishers had been completed and whether any action was contemplated.—Mr. GEOFFREY LLOYD, Under-Secretary, Home Office, replied: Yes, Sir. The results confirmed the view that french polishing is one of the occupations specially liable to give rise to dermatitis and that the most practical remedy is increased education of the workers in care of the skin.

Condemned and Overcrowded Houses in Edinburgh

Mr. GUY asked the Secretary of State for Scotland the number of condemned houses in Edinburgh still occupied and the number of houses found to be overcrowded by the survey under the Housing (Scotland) Act, 1935.—Mr. ELLIOT replied: At Nov. 30th the number of occupied houses to be demolished or closed under orders made by the corporation was 715. It is estimated that there are approximately 6000 unfit houses in the city which have not yet been made the subject of official representations.

MEDICAL NEWS

Royal College of Surgeons of England

A meeting of the council was held on Dec. 10th with Sir Cuthbert Wallace, the president, in the chair. Mr. R. Davies-Colley (Guy's) and Mr. G. T. Mullally (Westminster) were elected and admitted as members of the court of examiners, and Mr. H. F. Humphreys (Birmingham) was elected a member of the board of examiners in dental surgery.

The Hallett prize, granted on the result of the primary examination for the fellowship in November last, was awarded to Robert Evan Owen Williams (University College).

The council adopted the following as the reply to the resolution passed at the recent annual meeting of fellows and members :—

"That the council, having carefully considered and discussed the report of the proceedings at the annual meeting of fellows and members on Nov. 19th, 1936, can see no reason for reopening the question of altering the constitution of the College. The main function of the College is to promote the study and practice of surgery. If there are any matters in this connexion to which members of the College wish to draw attention, an opportunity for so doing is afforded at the annual meeting of fellows and members, while the council will at all times welcome and give careful consideration to representations made to it by any member or body of members of the College in reference to matters which come within the functions of the College."

The council accepted the offer of Lord Moynihan to present to the College a bust of his father and his collection of instruments. The council also accepted a gift of historic anæsthetic apparatus from Dr. R. J. Probyn-Williams.

Diplomas of fellowship were granted to the following candidates :—

Elaine M. K. Salmond, M.D. Lond., Gladys Hill, M.D. Lond., Herman Treissman, M.B. Lond., D. C. McC. Ettles, M.B. Lond., C. C. Cookson, M.B. Birm., N. E. Pitt, M.B. Lond., A. L. Pereira, M.B. Lond., A. N. Birkett, M.B. Manch., Malcolm Baillie, M.B. Lond., I. G. Williams, M.B. Lond., John Howkins, M.B. Lond., F. R. Kilpatrick, M.B. Lond., T. F. R. Griffin, M.B. Lond., H. B. Lee, M.B. Lond., L. Z. Cosin, L.R.C.P. Lond., G. C. D. Roberts, L.R.C.P. Lond., D. O. Davies, M.B. Lond., S. K. Ghosh, M.B. Patna, C. J. B. Murray, M.B. Lond., W. G. Q. Mills, M.B. Camb., A. S. Till, M.B. Camb., S. G. Clayton, M.B. Lond., E. O'D. C. Grattan, L.R.C.P. Lond., John Hughes, L.R.C.P. Lond., J. H. Kellgren, M.B. Lond., G. B. Davis, L.R.C.P. Lond., T. M. Williams, B.M. Oxon., H. K. Doctor, M.B. Bombay, R. L. Mehra, M.B. Punjab, S. O. Aylett, M.B. Lond., John Charnley, M.B. Manch., P. W. Clarkson, L.R.C.P. Lond., D. N. Matthews, M.B. Camb., J. F. Heslop, M.B. Manch., D. W. Ashcroft, M.B. N.Z., N. J. Bonnin, M.B. Adelaide, H. L. Cochrane, M.B. Belf., W. B. Dickson, M.B. Toronto, Alford Dornan, M.B. Belf., A. S. Gray, M.B. N.Z., N. M. Harry, M.B. Melb., W. G. Johnston, M.D. Toronto, F. R. Leonard, M.B. N.Z., C. P. V. Menon, M.B. Madras, Thomas Moore, M.B. Durh., W. A. B. Nicholson, M.B. Manch., K. I. Nissen, M.B. N.Z., D. P. O'Brien, M.B. N.Z., L. J. T. Pellew, M.B. Adelaide, L. M. Snaith, M.B. Durh., J. A. Stallworthy, M.B. N.Z., B. W. Stevens, M.D. Toronto, and O. G. Tunks, M.B. Sydney.

A diploma of membership was granted to Irene Katherine Hezlet, of University College Hospital.

Licences in dental surgery were granted to the following candidates :—

R. G. Archer, H. M. D. Archibald, R. J. Belcher, Marion J. Blennerhassett, B. F. Boyd-Cooper, P. M. Calder, D. F. Denniss, M. C. Dutt, E. H. Fletcher, Herman Frank, A. J. Freese, A. S. Ghosh, W. G. Godfrey, S. W. Guilding, E. W. Harradine, P. S. Hovell, D. C. Howe, J. C. O. Hurst, R. J. M. Inge, Olive I. James, P. S. P. Jenkins, F. K. Johnson, A. W. Keith, Joan L. Labern, Dennison Laverick, H. J. Lewis, T. J. M. Lowry, A. B. MacGregor, Irene Michael, Dorothy J. Millar, H. P. Moolgavkar, F. R. Pickard, H. D. A. Pocock, P. D. Priest, J. C. Prosser-French, G. J. F. Rees, T. D. H. Ridsdale, J. C. Robertson, J. L. Rossini, J. A. Smith, W. A. Smith, W. G. Smith, E. L. Sutton, H. L. Thomas, E. A. Thompson, Eric Townend, David Tudor-Williams, P. C. Webb, F. H. S. Weiss, C. R. L. West, J. W. Williams, G. H. Wilson, C. G. Wright, and William Wylde.

Diplomas in anæsthetics were granted jointly with the Royal College of Physicians to the following candidates :—

R. H. Blazeby, C. H. Catlin, George Edwards, Eva M. Gray, Elizabeth M. Handfield-Jones, T. A. B. Harris, T. H. Hobbes, G. H. W. Keates, Rosalind M. P. Milne, Joyce Morgan, L. O. Mountford, A. H. Pirie, J. W. Redgate, J. E. C. Rouse, H. B. C. Sandiford, R. L. Soper, Edith J. Thompson, F. A. H. Wilkinson, and R. F. Woolmer.

Royal College of Physicians of Edinburgh

At a meeting of the College held on Dec. 3rd Dr. W. T. Ritchie was re-elected president, and the following were elected to the council for the ensuing year: Dr. Edwin Bramwell, Dr. Alexander Goodall, Dr. J. D. Comrie, Prof. Charles McNeil, Dr. Fergus Hewat, and Dr. D. M. Lyon. Dr. Goodall was nominated vice-president.

University of London

At recent examinations the following candidates were successful :—

THIRD EXAMINATION FOR M.B., B.S.

D. L. H. Goddard, St. Thomas's Hosp.; J. S. Horn, Univ. Coll. Hosp.; S. A. Jenkins, Univ. Coll., Cardiff; Simon Marinker, Middlesex Hosp.; J. W. Pierce, St. Thomas's Hosp.; G. R. Royston, St. Bart.'s Hosp.; Eric Samuel, Middlesex Hosp.; and J. E. Spalding, Guy's Hosp. (with honours); G. P. Arden, Univ. Coll. Hosp.; Minnie Atkin and Sivasithamparam Balasingam, King's Coll. Hosp.; B. J. Bickford, St. Bart.'s Hosp.; Beatrice A. Blake, Roy. Free Hosp.; Reginald Bolton, Univ. Coll. Hosp.; L. C. Bousfield, Middlesex Hosp.; H. V. Brown, Guy's Hosp.; I. S. Buchanan, Westminster Hosp.; G. D. Channell, Guy's Hosp.; R. F. Clarke and F. E. Corea, St. Bart.'s Hosp.; Hilla Damry, Roy. Free Hosp.; C. S. Darke and D. A. Davies, Guy's Hosp.; D. J. Davies, Univ. Coll., Cardiff, and Univ. Coll. Hosp.; D. R. Davies, Univ. Coll., Cardiff; A. M. Desmond, London Hosp.; C. W. Dixon, King's Coll. Hosp.; R. B. Evans, London Hosp.; W. J. M. Evans, Univ. Coll., Cardiff; J. D. O. Fearnley, St. Bart.'s Hosp.; Margaret A. B. Fleming, Roy. Free Hosp.; K. D. Fraser, Univ. Coll. Hosp.; J. E. Furness, St. Thomas's Hosp.; R. E. Gibson and T. N. Grundy, St. Bart.'s Hosp.; W. H. Hamilton and J. A. J. Hammond, Guy's Hosp.; Gladys I. Jeffree, King's Coll. Hosp.; Joyce B. Jewson and Helen M. Kennedy, Roy. Free Hosp.; G. A. Kiloh, King's Coll. Hosp.; Marjorie F. Landau, Roy. Free Hosp.; S. W. Lane, St. Mary's Hosp.; L. R. Leask, St. Bart.'s Hosp.; Manuel Lederman, Westminster Hosp.; V. N. Leyshon, Charing Cross Hosp.; J. P. McGladdery, St. Bart.'s Hosp.; D. H. G. MacQuaide, St. Thomas's Hosp.; Alison J. McNairn, Roy. Free Hosp.; Morris Markowe, Charing Cross Hosp.; J. H. Mayer and J. A. W. Miller, Guy's Hosp.; Robina M. D. Morrell, Roy. Free Hosp.; Ananda Nimalasuria, King's Coll. Hosp.; Peggy C. Permain, Roy. Free Hosp.; J. H. Playne, St. Mary's Hosp.; S. W. Pratt, Univ. Coll. Hosp.; Ernest Price, St. Mary's Hosp.; E. P. Rigby and J. L. D. Roberts, St. Bart.'s Hosp.; Kathleen M. Robinson, Roy. Free Hosp.; E. ap I. Rosser, K. G. Rotter, and D. M. Samuel, St. Bart.'s Hosp.; J. K. Samuel, St. Thomas's Hosp.; D. A. Sanford, Univ. Coll. Hosp.; Olive M. Singer, Roy. Free Hosp.; E. H. J. Smyth, St. Bart.'s Hosp.; G. T. Stockings, King's Coll. Hosp.; S. F. Thomas, London Hosp.; Catherine M. Whitestone, Univ. Coll. Hosp.; J. R. Wilson, King's Coll. Hosp.; Eluned Woodford-Williams, Univ. Coll. Hosp.; G. N. Wright, Guy's Hosp.; P. J. M. Wright, St. Thomas's Hosp.; and Ruth E. Young, Univ. Coll. Hosp.

The following candidates have passed in one of the two groups of subjects :—

Group I.—H. I. C. Balfour, Beryl E. Barsby, Irene B. Black, Jane Bonnell, C. M. Bowker, J. A. G. Carmichael, D. A. Davies, R. D. L. Davies, G. S. W. de Saram, Margaret R. Dix, Gwenda M. Francis, Max Hamilton, Leon Henig, Denise O. Henry, F. G. Hollands, S. F. Jayawardene, Ursula J. Jeffery, Constance A. Mallett, Winifred F. G. Murray, J. E. R. Palmer, D. E. Parry, A. N. Roy, L. J. Sandell, Sheila G. Snook, R. W. Taylor, R. N. E. Watt, J. C. Watts, Joan M. Wenn, and F. H. Yates.

Group II.—J. C. Baillie, Gwendolen K. G. Coote, E. C. Dax, M. P. Embrey, D. R. Hanbury, T. H. Hills, Islwyn Hywel Davies, Mabel E. Linscott, D. de la C. MacCarthy, Mary D. Mellersh, A. G. Moore, F. T. Moore, O. N. Ransford, Ethel M. Strong, R. J. C. Sutton, Nest Thomas, P. H. Tooley, and A. M. Williams.

University of Sheffield

Mr. J. L. A. Grout has been appointed to the newly created post of honorary lecturer in radiological anatomy; Dr. George Clark to the post of junior assistant bacteriologist; and Dr. W. A. Timperley to a research fellowship in the department of physiology.

Prof. T. Talmage Read has been appointed external examiner in dental subjects.

University of Aberdeen

Work has been begun on the new medical school which is being built at Foresterhill adjoining the new Royal Infirmary. It is estimated that the total cost will be about £100,000, and provision is being made for departments of chemistry, bacteriology, pathology, medicine, surgery, midwifery, and materia medica. Sites will also be available for departments of physiology and anatomy which may be erected later. Each professor will not have his own classroom as at present, but there will be two lecture rooms, a large museum, and library common to all departments.

Medico-Legal Society

The annual dinner of the Society took place at the Trocadero Restaurant, Piccadilly, on Wednesday, Dec. 9th, under the presidency of Mr. C. Ainsworth Mitchell, D.Sc., the large company including Lord Dawson, Sir William Bragg, O.M., Sir John Parsons (president, Royal Society of Medicine), Sir Holman Gregory, K.C. (Recorder of London), Air Vice-Marshal Sir Philip Game, The Hon. Mr. Justice Porter, Judge Earengey, and Sir Alexander Maxwell.

Sir Holman Gregory, proposing the toast "Medicine and Law," said that verily those two professions could not do without each other, they had so many things in common. If asked what was the outstanding feature of the practitioners of those two callings he would reply "their code of honour." He had spent fifty years in association with the administration of criminal law, and he craved the assistance of both professions especially in one direction. His experience had been that 98 per cent. of the prisoners who came before the courts on serious charges were, in one sense, not responsible for what they did. The remaining 2 per cent. were brainy expert criminals, sworn enemies of society, and those should be rigorously punished. The 98 per cent. needed to have their position and mentality probed medically, to ascertain what was behind their unlawful activity. If he was able he hoped to bring the subject before the Society. In the present circumstances it was very difficult for these men, on discharge from prison, to make a fresh start. If the young offender could be better dealt with it would amount to a revolution in administration. He coupled with the toast the names of Sir John Parsons and Mr. Justice Porter.

Sir John Parsons, F.R.S., in responding, said that both medicine and law were characterised by extreme conservatism, and the movements of the law were very slow. The Colleges of Physicians and Surgeons were perhaps the most conservative bodies in England. Sometimes medicine tended to show a progressive movement, as in the recent promotion of a Bill in the Lords, but, thanks to the lawyers, it probably would not become law, and doctors would still be allowed to kill their patients in the old way. Aristotle was right when he said that law was invented in order that we might live a good life, and that was the aim of both medicine and law. Mr. Justice Porter said the distinguishing attribute of judges was their desire to be relevant, and while the law always took the view that very strict proof must be given of lunacy before a man could be excused in regard to a crime, the medical profession did not always take so strict a view, but sought some ground of irresponsibility. The judge's function was to see that order was kept in the State, and if that meant the sacrifice of the life of a man here and there, such sacrifice must be made. But, though in other respects the doctor was also a citizen, with him the particular person was a patient primarily. The lawyer, he contended, had one final standard of truth.

Proposing "The Medico-Legal Society," Air Vice-Marshal Sir Philip Game said that both law and medicine as such could do without the police, but the police could not do without them. He hoped the police laboratory at Hendon and the fruition of the scheme for establishing a medico-legal institute would prove a further step in the police becoming junior partner in the alliance between medicine and the law. The President, replying to the toast, spoke of the strictness of the relations governing the contact of the two professions with each other, and quoted the malicious remark of Samuel Butler in reference to the experience of some expert witnesses: "A day in thy Courts is better than a thousand." He spoke of the great success of the Society's journal, and the increasing support of it from outside the Society.

Judge Earengey, proposing "The Guests," said he hoped that when the medico-legal institute was established it would provide for the legal side in its organisation, as well as for the doctors. He was sure many would offer their help in furtherance of such an admirable scheme.

Sir Alexander Maxwell, responding to the toast, made reference to the proposed medico-legal institute and said that in connexion with a similar institution in a European capital it was stated that the institute had ample material for autopsies and for all sorts of pathological studies, because the Government placed at its disposal the corpses of all prisoners and civil servants. In this country he had been astonished at the way in which medical officers, of prisons especially, had learned to understand and appreciate the legal attitude of mind. But many medical practitioners in this country did not share that sympathy for the legal profession. He agreed with Judge Holman Gregory that the medical point of view with regard to offenders was often extremely important, and frequently differed from that of the lawyer. Many juries did not know the facts which were relevant in the case, and so were at a disadvantage in deciding what was the best to be done with the offender. At criminal trials he was often greatly impressed by the skill, learning, and patience of the scientists and doctors who gave expert evidence.

Exhibition of British Architecture

The private view of the Royal Academy Exhibition of British Architecture (mentioned in an annotation in our issue of Nov. 28th) will be held on Friday, Jan. 8th, 1937, and the exhibition will be open to the public on the Monday following.

Neurological Research Fellowship

The Sir Halley Stewart Trust has placed at the disposal of the Medical Research Council a sum of £500 per year for three years for a senior fellowship tenable in the neurological research unit at the National Hospital for Nervous Diseases, Queen-square, London. The fellowship has been awarded to Dr. Joseph Doupe.

Clarke Hall Lecture

The third Clarke Hall lecture will be delivered on Wednesday, Jan. 27th, at 4 P.M., in the hall of Gray's Inn, London, W.C., by Mr. S. W. Harris, assistant Under-Secretary of State, on probation and other social work of the courts. Sir Herbert Samuel will be the chair.

Federation of the Health Resorts of France

The Federation announces the impending fourteenth Voyage Medical International, the tour being on the Riviera. The tour will take place from Dec. 26th to Jan. 2nd, under the presidency of Prof. Laignel-Lavastine, of the Paris faculty of medicine. All medical men and their families are invited to join at the inclusive price of 1000 francs, and a reduction of 50 per cent. on the French railways. For full information application should be made to the Federation, Tavistock House (North), Tavistock-square, W.C.1.

Epsom College

The fifty-ninth annual meeting of the Old Epsomian Club on Dec. 10th was followed by the dinner at the Café Royal, London. Dr. S. Duke Turner (O.E. 1885) presided and the company included, besides the members of the club, representatives of the present generation at the College, and distinguished guests. After the loyal toasts, Dr. Allan Parsons (O.E. 1884), proposing the health of the chairman, told several tales, some tender, the majority gay, of their comradeship in arms at school in the 'eighties, in hospital, and the subsequent appointments in courtship, in the volunteer movement, and finally, during some forty years of medical work in different spheres. Many of these reminiscences were supplemented by the chairman in his response. Dr. Turner deplored the conspicuous lack of the younger old boys at the dinner, and offered to invite a score of these next year. The head master, the Rev. Arnold Powell, responding to the toast Floreat Epsomia, extolled the sympathy that had created Dr. Turner's generosity, for he was sure it was chiefly economy that prevented those beginning their careers from attending such functions. He paid a tribute to Sir Raymond Crawfurd, who had retired that year from the chairmanship of the College council. Sir Raymond had contributed, he said, more than any individual to the enhanced reputation of the school; in his position as head master he had seen daily the results of this work. He went on to welcome his successor, Dr. Henry Robinson, who had already shown evidence of a keen interest in all the school's activities. Mr. J. Norman Eggar (O.E. 1902) proposed The Guests, and Sir Maurice Cassidy and Dr. Robinson responded.

The Académie de Médecine has unanimously promoted Sir StClair Thomson, already a foreign correspondent, to be a foreign associate. The number of the latter is limited to twenty, and amongst them there is not at present any other representative of otolaryngology. The other British associates of the Académie are Sir Thomas Barlow, Sir Charles Sherrington, and Sir Almroth Wright.

Guy's Hospital

The trustees of the Bernhard Baron fund have offered £10,000 to this hospital for the reconstruction of its dispensary, on the condition that this department is named after Mr. Baron.

Society for Constructive Birth Control

On Wednesday, Jan. 6th, at 2.30 P.M., a practical demonstration of the technique of the use of a variety of contraceptive methods will be given by Mrs. Marie Stopes, D.Sc., and Dr. Evelyn Fisher. Application for tickets from medical practitioners and senior students should be made to the hon. secretary of the society, 108, Whitfield-street, London, W.1.

Mary Putnam Jacobi Fellowship

The Women's Medical Association of the City of New York offers this fellowship of $1000 to a woman graduate of an approved medical school for one year for post-graduate work in the medical sciences. Preference will be given to candidates who intend to spend the year in the United States. Applications should reach Dr. Annie S. Daniel, chairman of the fellowship committee, New York Infirmary, 321, East 15th-street, New York, before April 1st.

Frances Wood Memorial Prize

The council of the Royal Statistical Society offer this prize of the value of £30 in 1937 for the best investigation, on statistical lines, of any problem affecting the economic or social conditions of the people. Competitors will choose their own subjects, but it is believed that original observation or analysis made in the course of their ordinary work or special research will afford material for papers. Further information may be had from the hon. secretaries of the Society, 4, Portugal-street, London, W.C.2, to whom papers should be submitted before Oct. 31st.

Imperial Cancer Research Fund

The general committee of this fund held its annual meeting in London on Tuesday last, when Lord Halifax was elected president in succession to the Duke of Bedford. Sir Basil Mayhew, who presided, announced that a lease has been taken of 8 acres of land from the Medical Research Council at Mill Hill, and that a modern research station will be built there at a cost of £30,000 including equipment. (A drawing of the proposed building is reproduced on p. 1483, where the annual report of the director, Dr. W. E. Gye, is reviewed.) The sum of £19,000 had yet to be raised for the purpose.

On retiring from the presidency the Duke of Bedford sent a donation of £1000. Prof. H. R. Dean, Prof. H. W. Florey, and Prof. C. A. Lovatt Evans, F.R.S., were elected members of the general and executive committees.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.6.

MONDAY, Dec. 21st.—10 A.M., skin clinic. 11 A.M., surgical wards. 2 P.M., operations, surgical and gynæcological wards, medical, surgical, and gynæcological clinics.

TUESDAY.—10 A.M., medical wards. 11 A.M., surgical wards. 2 P.M., operations, medical, surgical, and throat clinics.

WEDNESDAY.—10 A.M., children's ward and clinic. 11 A.M., medical wards. 2 P.M., gynæcological operations, medical, surgical, and eye clinics.

THURSDAY.—10 A.M., neurological and gynæcological clinics. Noon, fracture clinic. 2 P.M., operations, medical, surgical, genito-urinary, and eye clinics.

Appointments

BEATTIE, J. H. M., M.D. Lond., F.R.C.S. Eng., M.C.O.G., has been appointed Hon. Gynæcologist to the West End Hospital for Nervous Diseases.

BELL, A. DOYNE, B.M. Oxon., M.R.C.P. Lond., Hon. Assistant Physician to take charge of the Children's Department at Queen Mary's Hospital for the East End.

BIRDSALL, S. E., B.Chir. Camb., F.R.C.S. Eng., Hon. Surgeon to the Ear, Nose, and Throat Department, Paddington Green Children's Hospital.

CAIRD, A. J., M.B., F.R.C.S. Edin., Hon. Surgeon to the Cumberland Infirmary, Carlisle.

COOKE, R. T., M.D. Edin., Assistant Pathologist at the Royal Infirmary, Preston.

DAVIES, D. O., M.B. Lond., F.R.C.S. Eng., Surgical Registrar at the Hospital for Sick Children, Great Ormond-street.

DUCKWORTH, GEOFFREY, M.R.C.P. Lond., Hon. Physician-Dermatologist to the Bolingbroke Hospital, Wandsworth Common.

EVANS, ROBERT, M.D. Belf., F.R.C.S. Edin., D.L.O., First Assistant to the Ear and Throat Department of the Children's Hospital, Birmingham.

FEGGETTER, G. Y., M.S. Durh., F.R.C.S. Eng., Hon. Surgical Registrar to All Saints' Hospital, London.

FORRESTER-WOOD, W. R., M.B. Camb., F.R.C.S. Eng., Assistant Hon. Surgeon to the Haywards Heath Hospital.

FRANKLIN, A. WHITE, M.B. Camb., M.R.C.P. Lond., Hon. Physician to Out-patients at the Paddington Green Children's Hospital.

GIBSON, M. J., M.B., F.R.C.S. Edin., Acting Visiting Honorary Surgeon to the Ear, Nose, and Throat Department of the Perth Royal Infirmary.

JEAFFRESON, B. L., M.D. Lond., F.R.C.S. Eng., M.C.O.G., Consultant Obstetrician for Halifax.

KERR, A. L., M.B. Liverp., F.R.C.S. Eng., Hon. Surgeon to the Sutton and Cheam Hospital.

LAURENT, L. P. E., M.D., M.R.C.P. Lond., Diagnostic Physician to the Institute of Medical Psychology.

LEEDHAM-GREEN, J. C., B.M. Oxon., F.R.C.S. Eng., Resident Surgical Officer at the General Hospital, Birmingham.

MCCREA, A. N., M.B. Camb., Resident Surgical Officer at St. John's Hospital, Lewisham.

MOODIE, A. R., M.D. St. And., F.R.C.S. Edin., Acting Visiting Honorary Surgeon to the Ophthalmic Department of the Perth Royal Infirmary.

NEVIN, S., M.D. Belf., M.R.C.P. Lond., Medical Registrar at the Willesden General Hospital.

* PATTERSON, W. G., M.D. Edin., M.R.C.P. Lond., D.P.H., Deputy County Medical Officer for Surrey.

RANKINE, J. E., M.B. Glasg., D.P.H., Assistant Medical Officer of Health for Lincolnshire (Kesteven).

ST. JOHNSTON, C. R., M.B. Birm., Resident Medical Officer at the General Hospital, Birmingham.

WIGODER, LIONEL, M.B., M.Dent.Sc. Dub., Hon. Dental Surgeon to the East Ham Memorial Hospital.

WYNTER, TASMIN M., M.D. Lond., D.A., Resident Anæsthetic Registrar at the Hospital for Sick Children, Great Ormond-street.

Hospital for Epilepsy and Paralysis, Maida Vale.—The following appointments are announced:—

MARTIN, PHILIPPA, M.S. Lond., F.R.C.S. Eng., Ophthalmic Surgeon;
WINNER, ALLERLINE L., M.D., M.R.C.P. Lond., Medical Registrar; and
FAIRWEATHER, D. S., M.B. Edin., M.R.C.P. Lond., Medical Registrar.

Middlesex Hospital.—The following appointments are announced:—

BEAUMONT, G. E., D.M. Oxon., F.R.C.P. Lond., Physician;
MARRIOTT, H. L., M.D., M.R.C.P. Lond., Assistant Physician;
MURRAY, C. J. B., M.B. Lond., F.R.C.S. Eng., Surgical Registrar;
BARBER, W. C., M.B. Camb., F.R.C.S. Eng., Surgical Registrar;
HOWKINS, JOHN, M.B. Lond., F.R.C.S. Eng., Obstetric and Gynæcological Registrar;
RABAN, J. P., M.R.C.S. Eng., D.M.R.E., First Officer to the Department of Radiotherapy; and
WILLIAMS, I. G., M.B. Lond., D.M.R.E., Second Officer to the Department of Radiotherapy.

Queen Charlotte's Maternity Hospital, London.—The following appointments are announced:—

CAPLE, H. H., M.B. Toronto, D.P.H., Senior Resident Medical Officer;
BEATON, DONALD, M.B. Edin., Assistant Resident Medical Officer;
MARTIN, C. J., B.Chir. Camb., Resident Anæsthetist and District Resident Medical Officer; and
MILNE, ROSALIND M. P., M.B. Aberd., Resident Anæsthetist.

Westminster Hospital.—The following appointments are announced:—

MACNAB, G. H., M.B. Edin., F.R.C.S. Eng., Surgical Registrar;
RUNDLE, FRANCIS, M.B. Sydney, F.R.C.S. Eng., Surgical Registrar;
D'ABREU, FRANK, Ch.M. Birm., F.R.C.S. Eng., Surgical Registrar; and
MULLALLY, G. T., M.S. Lond., F.R.C.S. Eng., Hon. Surgeon.

Certifying Surgeons under the Factory and Workshop Acts: Dr. J. J. COULTHARD (Edenbridge District, Kent); Dr. H. C. BOURKE (Allendale District, Northumberland); and Dr. D. H. LE GOOD (Lavenham District, Suffolk).

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* Subject to confirmation.

NOTES, COMMENTS, AND ABSTRACTS

THE PHILOSOPHER AND THE SOCIETY MOTHER

ONE of the minor misfortunes of a classical education in this country is that, during the years one is learning to read Greek and Latin, there is an agreement among teachers to confine their pupil's studies to the writers of the Golden Age of Athens and Rome. It is probably not altogether an unwise provision, yet it tends to remove the scenes and actors of whom we read to a sort of mythical atmosphere and we forget that, at least in Athens and Rome, and probably in other big cities like Alexandria, all classes lived much the same sort of life, had much the same sort of pleasures, and discussed much the same sort of literary, historical, or social questions as form the background of our own city lives. One of the advantages of our escape from tutelage is that the writers of the Silver Age are no longer under a ban, and a little reading in their pages puts the Roman world again on a human footing; we are no longer moving in a fairyland, but back in a world which was exceedingly busy with everyday matters.

Aulus Gellius wrote in the second century A.D. in the reign of the Emperor Antoninus Pius, and though often credulous and tedious, does give us pictures of the ordinary life at Rome, which enforce the lesson that times may change, but men—and women—do not. The following is a free but faithful translation of his account of a morning spent with his teacher Favorinus, and we could almost imagine that it was Boswell reporting a diatribe of Dr. Johnson's.

A MORNING WITH FAVORINUS

" I was with Favorinus when a message was brought to him that the wife of one of his pupils had just been brought to bed and delivered of a son. 'Let us go and see the infant,' said Favorinus, 'and congratulate his father.' The father was of a noble family of senatorial rank. All of us followed him and went in with him. In the hall he embraced and congratulated the father and then took a seat. And when he had inquired how long the labour had lasted and whether it had been difficult, and had been told that the lady, worn out with fatigue and want of sleep, was dozing, he began to talk freely and said: 'I suppose that she will nurse her son herself?' But the lady's mother answered that her daughter must be spared that trouble, and that wet-nurses were to be provided for the infant. 'Madam,' said Favorinus, 'I implore you to let her be the mother of her son in full perfection. For surely it is a strange imperfect and half-motherhood to bear a son and at once to reject him: to have nourished with her own blood in her womb something which she could not see, and then to deny her own milk to that which she now has before her eyes, a live human being, crying out for his mother's care. Or are you one of those who suppose that Nature gave women nipples as a sort of beauty-spots, not for the end that they may suckle their children, but as embellishments to their bosoms? For though of course you will not admit it, there are a lot of unnatural women who try to dry up and check that holy fountain of the body, the nourisher of mankind, regardless of the danger of turning and spoiling the milk, because they consider that it mars their bodily beauty. But in so doing they are guilty of the same mad folly as those who by hook or crook try to secure abortion of the fœtus which they have conceived, in order that there may be no wrinkle on the smooth surface of their bellies, and from fear that they may lose their figures by the burden of the child and the strain of labour.

" 'Now as it is an act of universal reprobation to go about to murder a human being at its very inception, while it is being moulded, endowed with life, and is still in the hands of Nature, the great artist, how little is the difference when you rob the child, now fully formed and born into the world, of the nourishment of the blood of its nearest and dearest relative. But, it is said, provided that the child is fed and kept alive, it makes no difference by whose milk that end is secured. Then why do not those who make this assertion, if they are really deaf to the call of Nature, also contend that it makes no difference in whose body and from whose blood a child is born and fashioned. Is not the marvellous cunning of Nature discernible also in this that as soon as the craftsman, the blood, has fashioned in its holiest precincts the body of a man, when the time of delivery is at hand, it rises to the breasts above, ready to cherish the first beginnings of light and life, and to supply the new arrival with his wonted familiar food? Well may we believe then that just as the property and nature of the seed have power to produce likenesses in body and mind, so a similar effect may be ascribed to the quality and virtue of the milk. We see it in animals as well as in human beings for if kids are suckled by a ewe, or lambs by a goat, the lambs' wool is coarser, and the goats' hair finer than usual. In trees and wheat also the power and qualities of the water and soil have more effect in delaying or promoting their growth than have those of the seed; and you may often see a vigorous blooming tree, transplanted to another place, die from the effect of the less fertile soil.

" 'What the mischief then is the sense of spoiling the body and mind of the new-born man, built up from the most promising beginnings, by the alien and inferior milk of a hireling? especially if she whom you procure is a slave or of menial origin, and as is very often the case, a barbarian and foreigner? if she is dishonest, ugly, unchaste, or given to drink? for generally any woman who has milk at the moment is employed without much enquiry. So this boy of ours, are we to let him be infected with some dangerous contagion, or to draw a spirit into his mind and body from a body and mind of perhaps the worst type? Why, good Heavens, that must be the reason for the fact which often surprises us that the child of a perfectly respectable mother turns out utterly unlike his parents either in body or mind. Our Roman Vergil when he imitated Homer's lines

> The brave knight Peleus never was thy sire,
> Nor Thetis was thy dam: but the gray sea
> And flinty rocks: so pitiless is thy soul.

was wise and witty enough not to base the charge on birth alone, but to add that some wild and savage mother was his nurse;

> The iron cliffs of frowning Caucasus
> Fathered thee: and some tigress of Hyrcania
> Gave thee her dugs;

for there is no doubt that in the formation of character the disposition of the nurse and the quality of her milk play an important part: for the milk though imbued in the beginning with the essence of the father's seed moulds the new-born character from the mother's physical and mental attributes.

" 'Again who will neglect or despise the consideration that those who abandon their offspring, banish them from their side, and give them to others to nurse, sever or at least impair and loosen that bond and cement of mind and affection by which Nature unites parent and child. For if an infant is given to another's care and removed from its mother, the strength of maternal passion gradually and insensibly fades, every call of impatient anxiety is silenced, and a child which has had another's care and nursing is almost as completely forgotten as if it had been lost by death. And the child's own feelings of affection, fondness and intimacy are centred wholly in her who has nursed him, and therefore just as in the case of foundlings, he has no feeling for the mother who bore him, nor any sense of something lacking. And so, when the foundations of natural affection are uprooted, the children thus brought up, however much they may seem to love their parents, yet that love is generally not instinctive, but merely the outcome of training and convention.'

"All this I heard Favorinus deliver in the Greek tongue, and I have reproduced his sentiments as well as I could recall them, for the advantage of my readers: but the elegance, the richness, and the fertility of his language could hardly be conveyed by the whole power of Latin eloquence, and scarcely at all by my feeble efforts."

HOSPITAL LIBRARIES

SOMEWHAT unhappily the description of hospital libraries has been given to the arrangements devoted exclusively to the provision of books for patients. King's College Hospital recently provided a corrective to this point of view by organising a meeting when the visitors had an opportunity to view the three libraries within its walls. The library from which the books are distributed to the patients was described by Mr. A. D. Power as chairman of the committee engaged in collecting books and enlisting voluntary assistants to deliver them regularly to the patients. A carefully designed trolley to enable the patients to view a wide selection of books while recumbent in bed attracted special attention. The account given by the Sister Tutor, Miss K. F. Armstrong, dealt with the books provided for the nurses for their studies and the library containing fiction under their own management. She claimed that the former is the best reference library of medical books for nurses in any hospital in the country. Their appreciation of the committee's generosity is demonstrated by the remarkable fact that while the average circulation of books of fiction is 30 a month, more than four times that number are taken out of the professional library. It was, however, the library handsomely housed in the medical school which specially aroused the interest of the visitors. Dr. A. Gilpin explained the respective values of medical text-books and medical periodicals to the student before qualification and for post-graduate work. An interesting collection of ancient treatises mainly received through bequests showed that medical history can be studied in a library established in comparatively modern times. Even in a hospital which has not a medical school, the scope of a hospital library can hardly be confined to the collection of books provided for the patients. The alliance which is being established in several parts of the country between the public library service and the hospital is one which might be extended for the benefit of the medical men and nurses. There is an increasing desire on the part of the public library to assist the serious student. Manchester, for example, has an admirable system of providing for the busy man, who cannot spare the time to go to the library, by delivering the book to him. In that category surely no one has a better claim to inclusion than the medical man and the nurses anxious to extend their knowledge.

YEAR-BOOK OF LEARNED SOCIETIES

FOR the fifty-third year in succession Messrs. Charles Griffin and Co. have now compiled from official sources a Year-book of the Scientific and Learned Societies of Great Britain and Ireland (pp. 170, 10s.). It is arranged under 14 sections, of which the last (and one of the longest) is Medicine, and the first General Science, starting off, as is right and proper, with the Royal Society and the Royal Institution of Great Britain. In between are sections of astronomy, geography, biology, agriculture, law, literature, archæology, and others. To the humanist there is much of interest in the variety of purposes for which people meet; it may be to study the early history of East Anglia or the protection of ancient buildings in London, for the study of monumental brasses, or the exploration of Palestine. In Liverpool people meet about gypsy lore, in Clifton they read Shakespeare, at the Chetham College, Manchester, they study parish registers, in Baillie's library, Glasgow, they talk about bibliography; and many of the societies are associated with the names of persons, some better remembered than others—Faraday, Harvey, Hakluyt, Charles Lamb, Samuel Johnson, Selden, Chetham, Dugdale, Ray, Quekett, Gilbert White, Brontë, Buchan, and many others. All are essentially of a learned character, only commercial undertakings being ruled out, and additions are always being made. This issue also contains a record of publications issued during the session 1935–36.

A TRIBUTE TO SIR PERCY SARGENT

THE late Sir Percy Sargent had many friends and admirers to whom this early and graceful address to him in Latin verse should prove of interest. The elegiacs were written on Sargent's 21st birthday, in his Cambridge days, by Mr. L. G. H. Horton-Smith, his deeply attached friend, who has at our request composed the English translation which is appended.

The belated appearance of the verses is due to the fact that Mr. Horton-Smith has only recently been looking over a collection of the scholarly and elegant verses that he was in the habit of making on topical occasions, when he found amongst them two sets of verses dedicated to Sargent of which the shorter is the one here reproduced.

AD SODALEM ILLUM UNICUM

(PERCY W. G. SARGENT)
Annos iam natum unum et viginti
Natali scripti die
Versiculi

O puer, exaudi! Labentibus ocior horis
  Vita imprudenti deperitura fugit.
Prætextatus adhuc—hodie, puerilia ponens,
  Liberior puram sumis adulte togam;
Verna dies abiit, pennisque sequacibus æstas
  Proterit invadens æmula veris iter;
Æstatem, mora nulla, rapax auctumnus adurget,
  Auctumnum refugum frigida bruma premit.
Immeritone queror? Quid enim? Sors una senectam
  Una iuventutem—pœnituisse—manet!
Dum brevis hora sinit, discas instare labori;
  Venturo nequeas credere. "Carpe diem.'

Idem Anglicè Redditum

VERSELETS TO HIS BOSOM-FRIEND

(PERCY W. G. SARGENT)
Upon his Coming-of-Age
The 8th day of May
1894

Give ear, my boy! No hours that pass abide:
  Beyond our heed, life all too swift flies on;
A youth,—to-day you lay your youth aside,
  And free, as man, now man's estate you don.

See! Spring has fled, and on pursuing wing
  Speeds envious Summer, soon itself to yield
To Autumn's greed and later heralding
  Of Winter's turn its own chill sway to wield.

Lament! Why not? For, youth and age alike,
  Each lives but tribute of "Regret" to pay!
To work, then, now! ere Time's last hour may strike
  Tomorrow's too untrusty. Snatch To-day.

THE C.S.M.M.G. DIRECTORY.—We are informed that the statement in our last issue that the new directory of the Chartered Society of Massage and Medical Gymnastics costs 4s. does not apply to members of the medical profession, who may obtain it free of charge.

BRADSHAW LECTURE: CORRIGENDUM.—In Mr. Hugh Lett's lecture on Renal Tuberculosis, published in our issue of Dec. 5th, there is a mistake on p. 1313. In the second column, three lines from the bottom, the figure 11·5 should be 7·5. The sentences thus read: "Pus in a sterile urine is recognised as being very suggestive of renal tuberculosis. It may occur, however, in 7·5 per cent. of cases of urinary calculus, excepting prostatic calculi, and also in some cases of long-standing chronic prostatitis."

Dr. Robert Heilig Library
S. M. S. Medical College

WHITAKER'S ALMANACK FOR 1937

THERE are a number of new features in the Almanack for 1937 which now contains 1064 pages. These additions deal with the results of recent censuses in Ireland and the Dominions, with overcrowding in England and Wales, with the progress of television, with various inventions which have come to light during the year, and last, but unfortunately not least, with precautions against air-raids. A library edition is to contain 13 coloured maps. But the value of Whitaker to the medical man does not reside in these interesting frills but in the fact that he can find in the volume the right information on anything he wants to know about, and he can find it in a moment by means of an index which now contains more than 100 pages. Whitaker is an essential desk companion and few practitioners can safely be without it. A supplement regarding the constitutional change and its results is available free of charge for insertion in copies which have already been issued. The price as usual is 6*s.*; abridged edition in paper cover 3*s.*

Messrs. LETTS have sent us several of their Quikref diaries for 1937. The "Shaftesbury" (2*s.* 6*d.* to 3*s.* 6*d.*) weighs just over an ounce, the thickness is only that of two half-crowns, and the cover is flexible making it an ideal diary for professional men. The "Public Speakers" (2*s.* 6*d.* to 3*s.* 6*d.*) covers 18 months so that appointments can be noted up to the end of June, 1938. The "Calendiary" (6*s.* 6*d.*) foolscap cloth, a week in opening, interleaved with blotting paper, has a perpetual calendar on the cover, the date being changed with the touch of the finger. The whole series is practical and attractive.

Vacancies

For further information refer to the advertisement columns

Aberdeen University.—Lecturer in Department of Medicine, £400–£575.

Battersea General Hosp., Battersea Park, S.W.—H.P. and H.S., at rate of £130 and £120 respectively. Also Cas. O. for Out-patients' Dept., at rate of £50.

Bedfordshire County Council.—Asst. County M.O.H., &c., £800.

Bexley U.D.C.—Asst. M.O.H., £550.

Birmingham City.—Asst. M.O.H., £600.

Bristol, Southmead Municipal General Hosp.—Jun. Asst. Res. M.O., at rate of £200.

Bristol University, Preventive Medicine Dept.—Laboratories Asst. Clin. Pathologist, £375.

Cardiff City Mental Hosp., Whitchurch.—Med. Supt., £1000.

Cardiff, Welsh National School of Medicine.—Part-time Lecturer in Anæsthetics, at rate of £525.

Central London Throat, Nose, and Ear Hosp., Gray's Inn-road, W.C.—Hon. Assts. for Out-patient Dept.

Chelsea Hosp. for Women, Arthur-street, S.W.—Anæsthetist, £21.

Cheshire, Cleaver Sanatorium for Children, Heswall.—Res. Asst. M.O., £300.

Chesterfield and North Derbyshire Royal Hosp.—H.S., at rate of £150.

City of London Hosp. for Diseases of the Heart and Lungs, Victoria Park, E.—Two Hon. Asst. Anæsthetists.

Connaught Hosp., Walthamstow, E.—Sen. Res. M.O., at rate of £150. Also H.P. and H.S., each at rate of £100.

Doncaster Royal Infirmary and Dispensary.—Res. Anæsthetist, at rate of £175.

East Ham Memorial Hosp., Shrewsbury-road, E.—Res. M.O., at rate of £200.

Gloucestershire Royal Infirmary.—H.S., at rate of £150.

Godalming, County Sanatorium, Milford.—Jun. Asst. Res. M.O., at rate of £350.

Guildford, Royal Surrey County Hosp.—H.S., at rate of £150.

Harefield, County Sanatorium.—Physician, £650.

Herefordshire General Hosp.—H P., £100.

Hosp. of St. John and St. Elizabeth, 60, *Grove End-road, N.W.*—Res. H.P. and Surg. Reg., each at rate of £100.

India Government Medical Research Dept.—Gazetted Posts, Rs. 625. Also Gazetted Post, Rs. 250, &c., per annum.

London County Council.—Two Radiologists, each £900. Part-time Radiologists, at rate of £125. Temporary Visiting M.O., £200. Also Part-time M.O.'s, at rate of £255 and £40.

London Homœopathic Hosp., Great Ormond-street, W.C.—Surgeon in Charge of Orthopædic and Mechano-Therapy Dept. Also Pathologist and Bacteriologist, £350.

London University.—University Chair of Pathology, £2000.

Manchester, Christie Hosp. and Holt Radium Institute, Withington.—Hon. Neurological, Urological, and Plastic Surgeons.

Manchester, Royal Children's Hosp.—Res. M.O. and Res. H.S., at rate of £150 and £100 respectively.

Manchester Royal Infirmary.—Hon. Dental Surgeon. Also Hon. Prosthetic Dental Surgeon.

Manchester Victoria Memorial Jewish Hosp., Cheetham.—Sen. H.S. and H.P., £250 and £180 respectively. Also Jun. H.S., at rate of £125.

Marie Curie Hosp., 2, *Fitzjohn's-avenue, N.W.*—Res. M.O., £100.

Market Drayton, Cheshire Joint Sanatorium.—Res. M.O., £250.

Middlesbrough, North Riding Infirmary.—Third H.S., at rate of £125.

Middlesex County Council.—Physician for County Sanatorium, Harefield, £650. Two Jun. Res. Asst. M.O.'s, each at rate of £250. Also Radiologist, £3 3*s.* per session.

Newcastle General Hosp.—H.S. and H.P., each at rate of £150.

Northampton General Hosp.—Hon. Asst. Physician. Also H.S. to Ear, Nose, and Throat Dept., at rate of £150.

Oldham, Boundary Park Municipal Hosp.—Res. Asst. M.O., at rate of £200.

Oldham Royal Infirmary.—H.S. and H.P. to Special Depts., each at rate of £175.

Prince of Wales's General Hosp., N.—Jun. H.S., £90.

Putney Hosp., Lower Common, S.W.—Hon. Ophth. Surgeon.

Reading, Royal Berkshire Hosp.—Two H.S.'s, each at rate of £125.

Rotherham County Borough.—Asst. M.O., £300.

Royal College of Surgeons of England.—Examiner in Pathology.

Royal Free Hosp., Gray's Inn-road, W.C.—Res. Cas. O., at rate of £150.

Royal London Ophthalmic Hosp., City-road, E.C.—Two Out-patient Officers, each £100.

Royal Masonic Hosp., Ravenscourt Park, W.—Res. Surg. O., at rate of £250.

St. George's Hosp., S.W.—Res. Obstet. Asst., £100.

[illegible] in. Tuber. O., £500.

[illegible] *for Women.*—Asst. Bacteriologist and [illegible]

Southampton Free Eye Hosp.—H.S., £150.

Southampton, Royal South Hants and Southampton Hosp.—Hon. Clin. Asst. to Dermatological Dept.

South London Hosp. for Women, Clapham Common, S.W.—Asst. Gynæcological Surgeon. Also Clin. Asst. for Surg. Out-patients.

Stoke-on-Trent, Longton Hosp.—H.S., £160.

Tottenham Borough.—M.O.H., £1200.

West Bromwich, Hallam Hosp.—H.P., at rate of £200.

Westminster Hosp., Broad Sanctuary, S.W.—Surgeon.

Willesden General Hosp., Harlesden-road, N.W.—Hon. Ophth. Surgeon.

York County Hosp.—H.P., £150.

The Chief Inspector of Factories announces a vacancy for a Certifying Factory Surgeon at East Kilbride (Lanark).

Births, Marriages, and Deaths

BIRTHS

HALL-SMITH.—On Dec. 11th, at Bournemouth, the wife of Dr. G. W. Hall-Smith, of a son.

HERN.—On Dec. 10th, the wife of Dr. J. R. B. Hern, of Devonshire-place, W., of a son.

MARRIAGES

EMMERSON—WILLIAMS.—On Dec. 10th, at the Chapel of the Savoy, Guy Emmerson, M.B., M.R.C.P., to Gwen, elder daughter of Dr. and Mrs. T. J. Williams, of Liverpool.

GOLDSWORTHY—KING.—On Dec. 4th, at Plymouth, Surg. Lt. (D.) F. J. Goldsworthy, R.N., to Anne, younger daughter of Mrs. Frederick King, of Plymouth.

GRAY—GANNAWAY.—On Dec. 8th, at St. James's Church, Spanish-place, Edward Emile Delisle Gray, M.D., M.R.C.P., to Lilian Maud, daughter of Charles Henry Gannaway and the late Mrs. Gannaway.

METCALFE—HILL.—On Dec. 12th, Richard Hood Metcalfe, M.D., F.R.C.S., to Isobel Russell Hill, M.B., only daughter of the late Rev. and Mrs. Hill, of Glasgow.

DEATHS

ASPINALL.—At Aughton, Lancashire, John Aspinall, M.R.C.S. Eng.

BUNCOMBE.—On Dec. 12th, at Walberswick, Suffolk, William Dewey Buncombe, M.R.C.S. Eng., late of the City of London Infirmary, Temp. Lt.-Col., R.A.M.C., in his 73rd year.

CLAPHAM.—On Dec. 11th, at Woodside Hospital, Capt. John Thurlow Clapham, M R.C.S. Eng., R.A.M.C. (retd.), aged 70.

LORD.—On Dec. 8th, at Orpington, Kent, Cyril Courtenay Lord, M.R.C.S. Eng., in his 65th year.

MCGANN.—On Nov. 22nd, at Mysore, India, Col. Terence Joseph McGann, I.M.S. (retd.), in his 95th year.

MITCHELL.—On Dec. 10th, at Queen's-road, S.E., Charles Mitchell, M.B., C.M. Aberd.

WHITBY.—On Dec. 8th, Frank Whitby, M.B. Durh., of New Romney, Kent.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

ADDRESSES AND ORIGINAL ARTICLES

CARDIAC FAILURE *

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I HAVE selected cardiac failure as the theme of this lecture for two reasons: first, because it is liable to develop in every case of cardiovascular disease, and secondly, because the subject is one on which there has been, and still is, a diversity of opinion.

Of the earlier theories that propounded by James Hope[15] in the early part of the last century deserves special mention because it provides the first authentic basis of the so-called back-pressure type of heart failure; his introductory remark is of considerable interest :—

> " Order of succession in which the several compartments of the heart are rendered hypertrophous by an obstacle before them in the course of the circulation."

and the following extracts are noteworthy :—

> " As an obstacle to the circulation operates on the heart in a retrograde direction, the cavity situated immediately behind it is the first to suffer from its influence."
>
> " When the distending pressure of the blood preponderates over the power of the (left) ventricle, its contents, from not being duly expelled, constitute an obstacle to the transmission of the auricular blood; hence the auricle becomes over-distended, and the obstruction may be propagated backwards through the lungs to the right side of the heart and there occasion the same series of phenomena."
>
> " When the mitral orifice is contracted . . . the left auricle having to struggle against the contracted valve in front, and also to sustain the distending pressure of the blood flowing in from the lungs, invariably becomes thickened and dilated; the engorgement, extending backwards through the lungs to the right ventricle, occasions its hypertrophy and dilatation, the lungs suffering in pre-eminent degree."
>
> " When the impediment to the circulation is primitively seated in the lungs, the right ventricle, situated immediately behind them, is the first to experience its influence; and when the cavity is so far overpowered by the distending pressure of the blood as to be incapable of adequately expelling its contents, the obstruction extends to the auricle."
>
> " Obstruction in the right auricle, whether from this or other cause, presents an obstacle to the return of the venous blood and therefore ultimately causes retardation throughout the whole venous system; nor is this all; for the retardation is propagated throughout the capillaries to the arterial system and thus at length returns in a circle to the heart."

Hope's classical observations were subsequently modified by the teaching of William Stokes, who emphasised more particularly the supervention of myocardial incompetence in valvular heart affections, and thus incidentally originated a theory which was destined for further development by cardiologists a generation after his time.

A brief extract from his treatise on Diseases of the Heart and Aorta [25] summarises the viewpoint which Stokes adopted in regard to cardiac failure :—

> " It too often happens," he said, " when the existence of a valvular disease is determined, that great labour is expended in ascertaining the exact seat and nature of the affection. Long and careful examinations are made to determine whether the disease exists at the right or left side of the heart; whether it be a lesion of the mitral, tricuspid, or the semilunar valves; a contraction; an ossification; a permanent patency or warty excrescence. Now, though in some, we might say in many cases, these cases may be resolved with considerable accuracy, it is also true that in a large number their determination is of comparatively trifling importance; and the two great practical points to be attended to are, first whether the murmurs proceed from an organic cause, and next, what is the vital and physical condition of the muscular portions of the heart; for it is upon these points that prognosis and treatment must entirely depend."
>
> " The practical physician, having satisfied himself that a valvular disease exists, will not devote too much time in ascertaining its exact nature; but he will examine into the vital and mechanical state of the heart's cavities. He will ascertain the amount of vigour of the heart, whether its force is above or below the natural standard."

Backward or Forward Failure

The above extracts deserve careful consideration because they constitute the original conceptions of two opposing theories, the one characterised by so-called forward failure, the other by back-pressure phenomena. It is common knowledge that the original doctrine of back pressure was universally adopted in this country, and that all the leading cardiologists continued to approve its significance until the early part of the present century. About that time the general trend of opinion underwent material revision, and cardiac failure began to be assessed in terms of myocardial incompetence, its derangement being more especially concerned with impairment in the efficiency of the heart's driving power and output rather than with the development of back-pressure effects as described hitherto. The late Sir James Mackenzie was a staunch advocate of the forward-failure hypothesis; in his view an insufficient blood-supply to the organs was the essential factor underlying the development of circulatory incompetence and all the signs and symptoms of failure indicated defective ventricular output. He assumed, in other words, that breathlessness, dropsy, engorgement of the liver, and renal congestion were accounted for by deficient cardiac output into the systemic circulation, and that a similar discrepancy in the lesser circuit was responsible for pulmonary œdema. Mackenzie's views coincided in broad principle with those of his contemporaries in this country, and the theory of forward failure still meets the approval of our modern writers. In brief, the general consensus of opinion associates the development of failure with diminution of the cardiac output to such an extent that the blood-supply to the tissues becomes insufficient for their requirements; but there are also other factors relative to variations in the blood chemistry induced by the retarded flow in the capillaries, by which the carbon dioxide pressure and the hydrogen-ion concentration in the tissues and respiratory centre are abnormally raised, and the oxygen content becomes relatively deficient for the normal processes of metabolism. The above principles have been summarised by Sir Thomas Lewis as follows :—

> " Breathlessness, the first indication of failure, is to be ascribed to a deficiency in flow of aerated blood to the head and neck."
>
> " When the output declines blood begins to collect on the venous side and the patient manifests signs of congested veins, enlargement of the liver, cyanosis, scanty urine, ascites, dropsy of the lower members and congestion and œdema of the lungs."

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* The St. Cyres lecture of the National Hospital for Diseases of the Heart, London, delivered at the Royal Society of Medicine on July 8th, 1936.

with mitral stenosis, and some degree of stagnation in the pulmonary circuit is obviously the outstanding feature of the disease. The left auricle is always dilated—in extreme cases to a capacity of 20 oz. or more—and according to most authorities its wall may be the seat of definite hypertrophy. Varying grades of pulmonary congestion and stasis characterise the disease in all its stages: there is well-marked dilatation of the venous trunks; the capillaries are widened and tortuous and there may be extensive atheromatous changes in the pulmonary artery and its branches. Further manifestations of the back-pressure stasis include pulmonary fibrosis, embolisation, infarction, areas of broncho-pneumonia, and varying grades of œdema.

These phenomena provide ample testimony of the retarded circulation and raised pressure which are induced by obstructive lesions at the mitral orifice; and the back-pressure theory, which appears to offer a reasonable solution of these processes, is further confirmed by the dysfunction of the right heart which invariably develops as the disease progresses. By reason of the raised tension in the pulmonary circuit some degree of ventricular hypertrophy is likely to be an obvious finding and signs of stasis in the right auricle and systemic venous circuit can usually be recognised more particularly in the later stages.

From the foregoing description it is fair to assume that the manifestations of mitral stenosis chiefly arise from inefficiency of the left auricle, the pulmonary circuit, and the entire right heart. The left ventricle is actually atrophied in certain cases and this may be the reason for its deficiency of output as apparent in the small pulse, the cold extremities, and the tendency to premature physical fatigue. Otherwise the sequence of events in mitral stenosis can be summarised as a progressively developing series of back-pressure changes primarily affecting the pulmonary circuit, extending later to the right ventricle and to the systemic venous system, and finally spreading to the capillaries, where the raised tension is largely responsible for œdema and serous effusions.

Heart Failure in Aortic Disease

From the above description the effects of mitral stenosis seem to vindicate the back-pressure theory of failure; and confirmatory evidence is not far to seek. Two conditions—viz., aortic valve disease and hypertension—are particularly noteworthy in this connexion. Both involve dilatation and overloading of the left ventricle and in the terminal stages of both there are, more often than not, defects in the vital capacity and paroxysmal breathlessness which may take the form of orthopnœa, cardiac asthma, or periodic breathing. Widely opposed theories have been put forward in regard to these respiratory embarrassments, but nowadays they are generally attributed to congestion in the lesser circuit and varying degrees of pulmonary œdema, the underlying mechanical defect being back pressure from an incompetent left ventricle which, by failing to dispose adequately of its venous load, is directly responsible for inducing stasis in the pulmonary vessels. The significance of vascular congestion in the lungs has been amply emphasised, its outstanding effects being (1) a reduction in the vital capacity and (2) an increased rate of ventilation, which are together responsible for the various forms of breathlessness occurring in left ventricular failure and which depend fundamentally upon nervous, mechanical, and chemical derangements. The idea of a nervous origin of breathlessness is based upon well-recognised reflexes which are transmitted centrally from various sources, including muscles in activity, lung tissue in a state of congestion, and certain of the great veins, possibly even the heart itself when conditions of high-pressure stasis develop in full form. Otherwise the breathlessness of left ventricular failure in its terminal stages may depend upon a variety of mechanical and chemical complications. The mechanical ones include hydrothorax, ascites, and pericardial effusions, all of which tend to raise the venous pressure, to diminish the vital capacity, and to increase the ventilation; while in the same category mention should also be made of the mechanical effect per se of a highly placed diaphragm irrespective of the immediate cause of its displacement, and of the respiratory obstruction caused by œdema of the bronchial walls in conditions of advanced pulmonary stasis. The chemical complications include changes in the hydrogen-ion concentration of the blood and variations in its oxygen and carbon dioxide contents, either of which may intensify the breathlessness of circulatory failure in the final stages.

Chronic Pulmonary Disease

In conclusion brief reference may be made to the question of heart failure in chronic disease of the lungs. The time-honoured belief, which survives in most of the modern text-books, is that conditions such as emphysema promote vascular changes which obstruct the blood flow in the lesser circuit and are ultimately responsible for dilatation and failure of the right ventricle, as evidenced by venous stagnation in the hepatic and portal systems, dependent œdema, and serous effusions. Recent investigations, however, tend to discount the practical significance of the above-mentioned theory, for it has been shown experimentally that back-pressure phenomena are not necessarily found in obstructive emphysema, and that in such a condition right-heart failure is an exceptional finding.

These conclusions are based on experimental research and clinical observation.

Kountz and his colleagues [17] estimated the circulation rate through the lungs of dogs in which emphysema had been artificially induced, and the results they obtained were confirmatory of a normal rate of flow through the vessels of emphysematous lungs. Kretz [18] investigated the effects of emphysema in experimental dogs and concluded that the condition per se could not be held responsible for hypertrophy processes in the right heart. Heinbecker [12] showed that, with moderate distension of the lungs, the rate of blood flow in the pulmonary vessels was accelerated owing to the straightening of certain of the capillaries and possibly also the opening of new ones, and that, when the lungs were further distended, the rate of flow was, to some extent, diminished. Alexander, Luten, and Kountz [1] analysed 50 cases of asthma, the majority complicated by varying degrees of emphysema, and found remarkably little evidence of cardiac injury or circulatory complications.

A further communication on the subject has recently been published by Miller.[21] He refers to the fact that in patients with extensive pulmonary fibrosis the functional efficiency of the lungs is often almost unimpaired, and his explanation is that, in the absence of such complications as congestive heart failure and pulmonary hypertension, the velocity of the blood flow in the lungs remains normal, the capillary alveolar bed being relatively spared by the fibrotic process.

It is obviously impossible to reconcile the above statements, which emphasise widely divergent views of circulatory disabilities in chronic pulmonary disease; and final solution of the whole problem must be deferred. Meanwhile, however, it may be advisable to comment briefly on certain of the views which have lately been advanced in regard to the incidence and clinical interpretation of so-called cardio-pulmonary disease.

In a personal communication Clifford Hoyle remarks on the singularly low rate of mortality from congestive heart failure in chronic lung disease, and his estimate—approximately 3–4 per cent.—is especially noteworthy in contrast with those of earlier authorities, some of whom associated the terminal stages of all chronic pulmonary disease with the development of right-heart failure. Hoyle further states that when heart failure develops in cases of chronic lung disease it is of the congestive type, and he divides the post-mortem appearances into two main groups: (1) those showing enlargement of the right heart with varying degrees of dilatation of the pulmonary conus, the main pulmonary artery and its branches; and (2) those showing a general enlargement of the whole heart, with little if any disproportionate hypertrophy of the right side. The latter group is of particular interest because opinion is not yet unanimous about the factor or factors responsible for such general enlargement of the heart as occurs in chronic pulmonary disorders. Certain authorities have suggested peripheral hypertension; Hoover,[14] on the other hand, considered that, owing to faulty oxygenation in the lungs, a condition of relative ischæmia developed in the myocardium, and Kountz and his colleagues [17] contend that the ætiology of the general enlargement, which often characterises chronic cardio-pulmonary disease, has not yet been adequately explained.

The above investigations suggest that we may need to modify the view hitherto adopted in regard to heart failure in chronic pulmonary disease. Of the evidence at present available the following details are especially noteworthy in the present context:—

(1) Right-heart failure and back pressure phenomena are rare developments in chronic pulmonary disease.

(2) As a general rule, if the heart is affected in chronic pulmonary disease, both the right and the left ventricles will be involved in the process.

(3) The later stages of chronic pulmonary disease may be characterised by certain symptoms which have hitherto been interpreted as typical manifestations of cardiac failure. These symptoms include breathlessness, cyanosis, and œdema, the former two being adequately explained by the diminished vital capacity, the latter (the œdema) by the anoxæmic processes and the raised venous pressure, all of which are incidental to chronic pulmonary affections.[16]

Conclusion

It only remains to make a brief summary of some of the factors apparently responsible for heart failure. The rival theories of back pressure and defective output have been in turn adopted and rejected, and it is evident that the prolonged conflict of opinion has obscured an effective issue; apart from which it is noteworthy that there has been a tendency for cardiologists, in exploiting either of the two opposing theories, simultaneously to discredit the other. The situation is admittedly very complex, but certain conclusions appear to be already justified by the results of experimental and clinical research. Thus it has been clearly established that heart failure involves some degree of defective output capacity, and it is equally certain, on the other hand, that back pressure may be concerned in the process. Such being the accepted findings, I suggest that the much criticised back-pressure theory of heart failure should not only be recognised, but that we should be prepared to associate the development of back-pressure phenomena with varying degrees of defect in the output capacity. Thus we may accept two well-defined circulatory abnormalities as fundamental to our conception of cardiac failure in so far as its strictly mechanical origin is concerned.

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EXCRETION OF GONADOTROPIC SUBSTANCES IN THE URINE DURING PREGNANCY

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Aschheim and Zondek's demonstration [1] that pregnancy urine contains gonadotropic substances has been widely applied for the detection of early pregnancy; but comparatively little attention has been paid to the quantitative aspects of the excretion of these substances. The figures published have usually been derived from a composite of a series of patients. According to Zondek [2] the concentration of gonadotropic substances rises rapidly in the first month of pregnancy, remains at a high level for several months, and declines gradually in the later months and rapidly after labour. The curves given in Robson's [3] and Frank's [4] reviews are of this type. There has been some suggestion that the qualitative Aschheim-Zondek reaction could become negative in the later months of pregnancy. Hamburger [5] followed one case at intervals throughout pregnancy and stated that there was a maximum at the third month followed by a slight fall. Smith and Smith [6] followed a series of cases through the early months of pregnancy and reported that there was a peak of excretion which might be anywhere between the second and the fourth month and that during the remainder of pregnancy the concentration was maintained at a low level. Heim[7] reported two cases in the third month which showed very high values (166,000 and 252,000 units), such as had been previously regarded as being characteristic for hydatidiform mole or chorio-epithelioma.

In the present investigation[8, 9] a series of cases has been followed throughout pregnancy: in one case the specimens were collected daily and in the others two or three times a week. *Our results show that there is a maximum concentration of gonadotropic substances in the urine* (100,000–300,000 rat units per litre) between the 50th and 60th days after the beginning of the last menstrual period, the rise to this maximum occurring sharply between the 40th and 50th days. The peak lasts only a very short time, sometimes only a few days, and is followed by a rapid fall in concentration, between the 65th and 85th day, to 20,000–40,000 R.U. Thereafter the decline is more gradual, reaching a level of 3000 R.U. by the 120th day. The concentration then remains more or less constant at this low level and declines rapidly after delivery, as has been previously recognised. The maximum concentration reached varies markedly in different individuals, but the time relations of the curve of excretion are remarkably constant.

METHODS

The first specimen of urine passed on rising in the morning was used for assay. The ideal would be the collection of 24-hour specimens, but for a study such as this, extending over the whole of pregnancy, with the collection of frequent specimens, this is impracticable. We have taken the specific gravity of the urine, and some of the minor variations in the latter half of pregnancy can be accounted for on the basis of variations in the concentration of the urine itself. In doing the assays we have, wherever possible, united three or four morning specimens and have assayed the mixture, because this tends to lessen the effect of alterations in concentration of the urine.

The method of concentration of the gonadotropic substances was the benzoic acid procedure of Katzman and Doisy.[10] This has been *shown to be satisfactory* for the type of gonadotropic substance found in pregnancy urine. The test animal was the intact 21-day-old female hooded rat. The animals were injected subcutaneously twice daily for three days. Vaginal smears were taken once daily on the fourth, fifth, and sixth days and those animals which showed a positive vaginal smear were killed on the morning of the sixth day. The ovaries were removed, weighed, sectioned, and examined histologically. A full squamous response, which was usually accompanied by histological evidence of follicle-stimulation, was taken as a positive result. The unit was defined as the smallest amount necessary to produce this result. The number of days on the charts is reckoned from the first day of the last menstrual period.

RESULTS

The results are shown in Fig. 1. A short summary of some features of the cases studied follows:—

CASE T was one of habitual abortion and was treated with progesterone in the early part of pregnancy. The amounts injected were 10 mg. every third day, days 35–62; 7 mg. every third day, days 63–80; 5 mg. every third day, days 81–91; 5 mg. every fifth day, days 92–142; and 5 mg. every seventh day, days 143–206. The injections were then stopped. The pregnancy continued normally. Labour was induced on the 284th day. Some manipulation was required and forceps were applied. The child was normal.

CASE W was one of sterility of nine years' duration; one previous full-term pregnancy. Specimens were collected *daily for six months* prior to, as well as throughout, the period of pregnancy. The values for the period of conception are given in the Table and will be discussed later. In the early months in this case there was slight nausea but no vomiting. In addition to the regular assay, the amount of urine necessary to produce luteinisation of the ovaries of the test animal was determined. The highest value on this basis was 100,000 R.U. per litre on day 51, at which time by the regular method of assay the value was 133,000 R.U. per litre. The curve for this

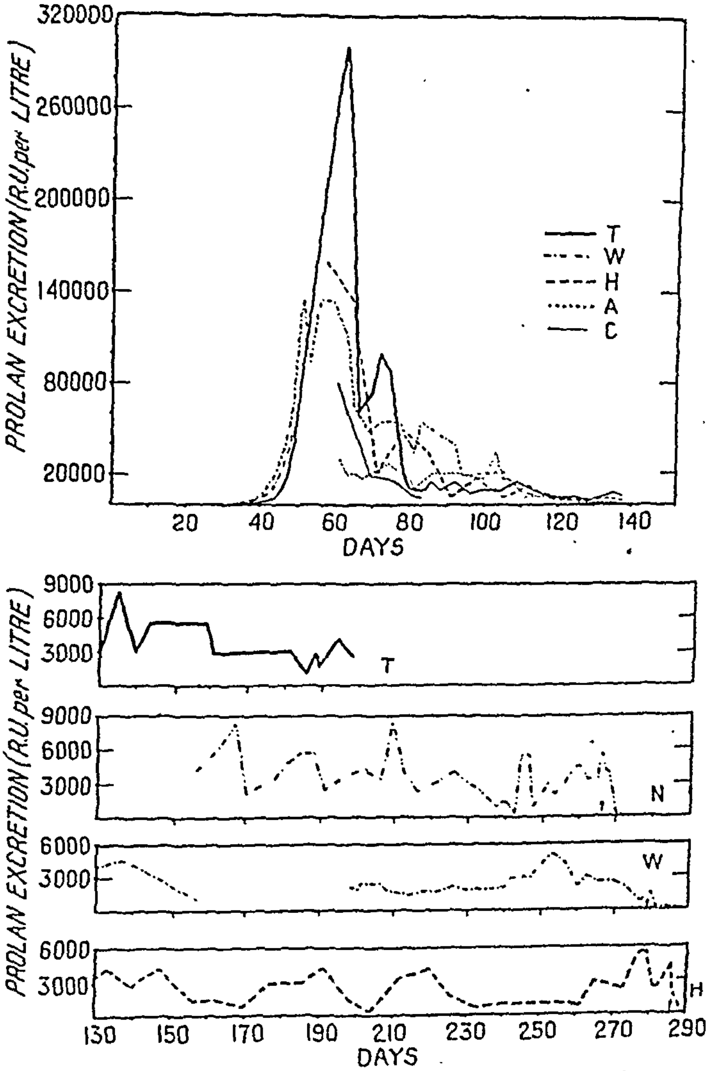

FIG. 1.—Excretion of gonadotropic substances in the urine during pregnancy in five cases; days are counted from the first day of the last menstrual period. The arrow represents the time of termination of the pregnancy in each case. The values are expressed in rat units per litre.

patient in the later months is less variable than that of the others, probably because the more frequent collection of specimens and assay of four days' specimens mixed together tended to minimise chance variations in concentration of the urine. The slight rise during days 250 to 260 was accompanied by diminution in the total output of urine, slight œdema, but no rise in blood pressure and no albuminuria. It may be regarded as a concentration phenomenon. There is no change in the urine values on the day of labour. This patient had an inert labour and the child was born dead, though it had been alive up to the time of delivery.

CASE H was a normal untreated case, with delivery on the 286th day. Pregnancy and labour were normal throughout.

CASE A had fairly marked nausea and vomiting in the first three months but from then on ran a normal course. Labour occurred spontaneously on the 294th day and proceeded normally.

CASE C was an untreated case in which abortion occurred on the 141st day.

CASE N was an untreated case who developed slight toxic symptoms with œdema and skin eruption. Labour was induced on the 266th day and proceeded normally.

The type of concentration curve for urinary prolan which we consider normal for human pregnancy, with a very high peak between the 50th and 60th days, corresponds to the concentration curve obtained for prolan in the blood of the pregnant mare by Cole and Saunders [11] and Stammler.[12] Their values show a more prolonged elevation: in the report of Cole and Saunders from the 50th to the 110th day and in Stammler's studies from 45 to 100 days. Cole and Saunders regard these curves as a reflection of the rates of formation and destruction of the substances concerned. In studying the blood in human pregnancy Kennedy [13] found no peak at this period. Apparently in man the kidney is so permeable to prolan, at this stage of pregnancy at least, that the changes are reflected in the urine rather than in the concentration in the blood.

The reason that the peak of excretion between the 50th and 60th days has not been recognised earlier is that the assays have in general been done at too long intervals.

Hamburger [5] assaying on day 41 found 5000 M.U. per litre; the next assay, on day 72, gave 10–15,000 M.U.; this is probably just on the down curve and beyond the peak. Thereafter his values remained about the same till term.

The peak as reported by Smith and Smith in the second, third, or fourth month does not correspond to that described by us. In three of their cases (Nos. 2, 3, and 4) the assays were performed between day 50 and day 60. In Case 2, a normal pregnancy, at about 52 days (1¾ months) their value was 13,000 R.U. per 24 hours (their unit requires the luteinisation of the ovaries for a positive test). This is by far the highest value in their whole series. The other cases (Nos. 3 and 4) were assayed at 60 days; both were cases of threatened miscarriage, which however carried through to term on this occasion. Case 3, who had miscarried on two previous occasions at the third month, gave a value of 1700 R.U. per 24 hours, and Case 4, with one previous miscarriage at three months, a value of 2300 R.U. The rest of the cases were assayed at such intervals that the peaks found are probably points on the down curve of the prolan excretion. They appear as peaks because they are compared with values obtained still later in pregnancy or as in Case 1 with that obtained early, before the rise has occurred.

Very recently Schoeneck,[14] using the rabbit, has obtained a curve of prolan excretion with a maximum between the 7th and 10th week. This lies within the period of our reported maximum concentration. He relates the height of this maximum to the gravity of the symptoms of nausea and vomiting in early pregnancy and states that the higher the concentration of prolan at this time, the more severe are the symptoms. We feel that further work is needed in this regard. Our Case A, who had moderately severe vomiting, had a relatively low concentration of prolan; on the other hand, Case T with the highest prolan had no untoward symptoms. However this patient was receiving large doses of progesterone over this period which makes interpretation doubtful.

AN INTERPRETATION OF THE DATA

We should like to put forward a tentative suggestion as to the significance of the curve of prolan excretion which we believe to be normal in human pregnancy. It is known that during the first part of pregnancy the ovary, containing the corpus luteum, is essential to the maintenance of the pregnancy; in the later stages of human pregnancy the ovaries are evidently not essential, since a number of cases in which pregnancy continued to term in the absence of both ovaries has been reported. (The time at which the ovaries have been removed varies.) In some species the ovaries are essential throughout pregnancy. It is very probable that in the rat,[15] and also in human cases,[16 17] the placenta is capable of forming corpus luteum hormone, and its ability to form œstrin has been generally accepted.

From these and other considerations we may form the following concept. In the early part of pregnancy the ovaries with the corpus luteum are the source of corpus luteum hormone, and possibly of œstrin, which are necessary for the implantation and maintenance of the gestation; in the later months the placenta is the site of production of both œstrin and corpus luteum hormone. The degree of transfer of function from ovary to placenta varies in different species. In human pregnancy it is complete, or at least sufficient to maintain pregnancy in the absence of the ovary after the third month. It is probable that the time relations of the transfer of function from ovary to placenta vary with different individuals; in some the placenta begins to function early, in some late. In the rat, as shown by Selye, Collip, and Thomson,[15] the placenta forms adequate amounts of corpus luteum hormone, but apparently œstrin is formed in the ovary only, throughout pregnancy.

On this view, then, there are two sources of corpus luteum hormone and of œstrin: the ovary with the corpus luteum and the placenta. If the corpus luteum ceases to produce corpus luteum hormone before its formation by the placenta has been established sufficiently, abortion follows. The time when a deficiency of corpus luteum hormone is most likely is in the transition period between the ovarian and the placental phases (second, third, and fourth months) and it is at this time that corpus luteum hormone therapy will be most effective in preventing miscarriage. We regard the curve of prolan excretion as reflecting in a sense the ovarian phase of pregnancy, just as the œstrin curve can be taken as a reflection of the placental phase. The gonadotropic substances are regarded as formed in the chorion or placenta from the earliest phase of pregnancy. As long as the corpus luteum in the ovary is the source of corpus luteum hormone the gonadotropic substances are liberated into the general circulation in large amounts, and maintain the corpus luteum. In human pregnancy these substances escape into the urine whereas in the pregnant mare they accumulate in the blood.

When in the placenta itself cells develop which are capable of forming corpus luteum hormone, as in the later stages of pregnancy, then the condition of affairs may be as follows. Certain cells of the placenta are producing gonadotropic substances which now stimulate other cells in the placenta itself to produce œstrin and corpus luteum hormone. Hence less gonadotropic substance escapes into the general circulation; either because less needs to be produced to cause stimulation of other cells when this takes place in the same organ, or because the part which is utilised in the same organ in which it is formed never escapes into the general circulation. On this basis the rise in serum prolan found in the later months of pregnancy by Kennedy[13] would have to be explained as due to a rate of excretion relatively less than the rate of escape of prolan into the general circulation. There is no experimental evidence for this interpretation of the curve of prolan excretion and we put it forward as a suggestion only.

TWO CASES FOLLOWED THROUGH CONCEPTION

In Fig. 2 and in the Table are shown the results in two cases followed through the period of conception. One of these was Case W mentioned above. The other, Case B, was also one of sterility: married for 14 years, no pregnancies. The excretion of some gonadotropic substance on days 9 and 10 in Case W, and on days 13–16 in Case B correspond to that found by Kurzrok, Kirkman, and Creelman[18] and Frank and Salmon[19] in the normal menstrual cycle. These results in our cases are probably not quantitative since the benzoic acid method has been shown not to be satisfactory for the type of gonadotropic substances excreted in the urine in non-pregnant individuals (Friedman and Weinstein[20]). Kurzrok et al. regard this excretion as immediately preceding ovulation. In his two cases the interval between this and the reappearance of gonadotropic substance in the urine was 10 and 13 days respectively, which he regards as corresponding to the interval before implantation. In Case W this interval was 15, possibly 13, days (as one two-day specimen was lost) and in Case B 12 days. The curve of concentration of gonadotropic substance in the two cases differs greatly. In Case B the value is much lower, the difference being apparent as early as day 34. On day 51 the value for Case W was 133,000 R.U. per litre, that for Case B only 1100 R.U. In Fig. 2 the results for Case B are given in graphic form.

Vaginal bleeding started on day 35 and on day 42 there was acute abdominal pain with increased bleeding. A sharp drop in the curve occurred at this time. The concentration then rose again to day 52 when there was a second attack of acute abdominal pain with increased bleeding from the vagina. This was again accompanied by a sharp drop in concentration of gonadotropic substances in the urine. These decreases in concentration may possibly be correlated with the occurrence of bleeding and further separation and death of the chorion at these times of acute pain and increased vaginal bleeding. On the 57th day the patient was operated upon and an ectopic gestation was found in the right Fallopian tube. This was of the nature of a tubal mole. The products of conception proved to be macerated, and there was very little living chorion actively penetrating the wall of the tube.

We do not regard the very low concentration found in the urine in this case as characteristic of ectopic gestation. We have examined other such cases and have found concentrations as high as *55,000 R.U.* per litre. We are at present unable to say whether the latter value is significantly lower than the lowest value found in a normal gestation. In these cases on section the chorion was found *to be still living*. We do however regard such a low concentration of gonadotropic substance at this period, when all the normal cases so far studied have shown high values (Fig. 1), as indicative that the products of conception are dead or dying. We have assayed several cases of intra-uterine gestation which gave very low values at this period. The embryo was subsequently found to have been dying or dead at the time that the determination was made. In Case B the qualitative Aschheim-Zondek test was positive (reaction III.) from day 42 to the day of operation.

Prolan Excretion (Rat Units per Litre)

Days from L.M.P.	Case W (N.P.).	Case B (E.P.).	Days from L.M.P.	Case W (N.P.).	Case B (E.P.).
9–10	12	—	44–45	20,000	500
13–14–15–16	0	12	46–47	33,400	830
23–24	—	0	49–50	66,700	830
25–26	20	0	51–52	133,000	1,100
27–28	50	12	53–54	93,000	330
29–30	—	55	57	—	Operation
31–32	—	68	58	—	240
33–34	1,200	120	59	—	110
37–38	3,330	220	60	—	55
40–41	5,550	420	61	133,000	—
42–43	16,500	<50	62–63	111,000	—

L.M.P. = Last menstrual period.
N.P., E.P. = Normal and ectopic pregnancy.

In this connexion it may be mentioned that Jeffcoate[21] and Tate[22] have observed variations in the Aschheim-Zondek test which they regard as indicative of approaching abortion. Jeffcoate found in his test animals no corpora hæmorrhagica and only slight luteinisation of the ovaries with marked dilatation of the uterus. This effect he attributed to an excess of œstrin over prolan A and B in the urine tested. Tate's results showed marked follicle-stimulation (reaction I.) with only slight reaction II. and III.

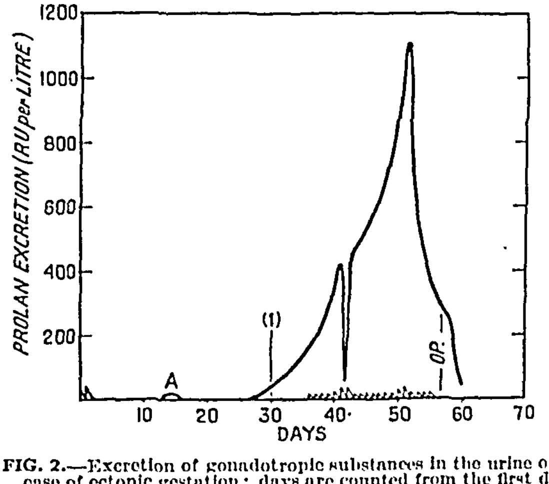

FIG. 2.—Excretion of gonadotropic substances in the urine of a case of ectopic gestation; days are counted from the first day of the last menstrual period The serrated line at the bottom of the chart represents vaginal bleeding. The height of the serrations represents the amount of bleeding. A is the usual excretion of prolan in the normal menstrual cycle. (1) is the date of the first missed menstrual period. OP. represents the day of operation.

It may be suggested that these results are due to the low concentration of prolan which we have found to be present in a *similar type of case, or possibly to a change in the relative amounts of* follicle-stimulating and luteinising factors.

In contrast to these cases, our Case C (Fig. 1), although the peak was missed, showed a value of *80,000 R.U. per litre on day* 60 and aborted spontaneously on day 141. Therefore it is probable that a normal high curve of concentration of gonadotropic substance between days 40 and 100 does not mean that abortion may not subsequently occur.

The above findings are of interest in connexion with the treatment of cases of threatened abortion, which is common in the period mentioned. It would save much time and expense if one could determine in a short time whether the products of gestation are already dead or not. It is obviously undesirable and wasteful to attempt to prolong an already dead pregnancy by means of progestin or otherwise. Naturally until the assay is completed all efforts should be made to maintain the pregnancy. It is hoped that further study will show that a low concentration of urinary gonadotropic substance when found between the 40th and 100th day will enable one to say that the pregnancy cannot be maintained, though a similarly low figure would not be abnormal after the 120th day. To make use of such an observation, the date of the last menstruation must be accurately known, since the concentration of gonadotropic substance rises and falls over a relatively short period.

SUMMARY

The excretion of gonadotropic substances has been followed in five pregnant women. We find that the normal curve of concentration differs from that generally accepted. There is a sharp rise in concentration between the 40th and 50th day after the beginning of the last menstrual period. The maximum concentration occurs between the 50th and 60th day, often being maintained for only a few days. There follows a rapid fall in concentration between the 60th and 85th day. Thereafter the decline is more gradual; a low level is reached at about the 120th day and is maintained throughout the rest of pregnancy in the cases studied.

The possible significance of this type of curve in connexion with the ovarian and placental phases of pregnancy is discussed. The concentration of prolan has been found to be very low at this period (40–100 days) when the fœtus (intra- or extra-uterine) is dying, although the qualitative Aschheim-Zondek test may be positive. The use of a quantitative determination of prolan, knowing the period of gestation, is suggested as a guide to therapy in cases of threatened abortion.

We wish to acknowledge the valuable assistance of Miss M. J. Werner and Miss M. B. Long in connexion with the biological assays, also to express our indebtedness to Dr. J. S. Henry for his assistance in connexion with some of the patients.

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THE CONSERVATIVE TREATMENT OF THROMBO-ANGIITIS OBLITERANS

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In two previous papers[1 2] I described a new method of treating gangrene caused by thrombo-angiitis obliterans. In summary, it may be stated that this disease is essentially one affecting males under the age of forty. Occasionally it occurs in older persons and in women, but these are the exceptions. Because of the incidence of the disease in young people, the necessity for conservation of the extremities is twofold. First, the unnecessary mutilation of young men is tragic from any standpoint, including the economic. Secondly, the remarkable tendency to the spontaneous formation of collateral circulation in the affected limbs of these patients is greatly accentuated by their youth. Because of these factors, I have had the courage to carry these patients through the various stages of gangrene, and have allowed them to heal spontaneously without resorting to operative interference in spite of the traditional eagerness of the surgeon to amputate a limb merely for the sake of relieving either the patient's pain or the surgeon's peace of mind.

Since the publication and report of numerous cases of gangrene, many have felt that the results obtained would be only temporary and that recurrences would be the rule, leading to eventual amputation of the limbs. It is for the purpose of disproving this idea that the following cases have been selected as typical examples of what may be accomplished both immediately and for the future in the conservative treatment of thrombo-angiitis obliterans.

A SERIES OF CASES

The following 20 cases of gangrene described in my book[3] are now reported from the standpoint of "end-results."

CASE 1.—A man aged 32 was healed of extensive gangrene of the left foot with spontaneous amputation of all the toes six years ago. He is now working in a pyjama factory and has had no recurrence of his trouble.

CASE 2.—A man aged 43, who had sustained spontaneous amputation of the forepart of the right foot in 1928. When last seen two years ago was in excellent health and able to walk long distances with no difficulty.

CASE 3.—A man aged 40, who had undergone spontaneous amputation of the forepart of the right foot in 1930. Was in excellent condition for five years during which time he was able to ride a bicycle and walk long distances. He sustained an attack of coronary thrombosis one year ago which proved fatal. Two brothers also affected with thrombo-angiitis obliterans had died in the same manner.

CASE 4.—A man aged 38 was seen by me again a few days ago. He had had a spontaneous amputation of three-fourths of the right foot leaving only the heel for weight-bearing. It is now two years since he has been healed, and he remains so with excellent weight-bearing and walking in spite of a very high amputation of the opposite leg which had been performed by another surgeon ten years ago. An orthopædic appliance is used as a substitute for the amputated portion of the right foot.

CASE 5.—A man aged 47 remained completely healed of a large ulcer on the dorsum of the left foot for four years. At the age of 51 he developed thrombosis of the left femoral artery, most likely arterio-sclerotic in origin, and suffered a recurrence of the ulcer but of less extent. At the present time healing is delayed because of the difficulties encountered in the hospitalisation of this patient.

CASE 6.—A man aged 40, who had an extensive gangrenous ulcer of the right heel extending down to the os calcis, has remained well and able to walk with no difficulty for the past six years.

CASE 7.—A man aged 34, who had sustained spontaneous amputation of the distal portion of the middle toe of the left foot four years ago, is working constantly at his regular occupation and has no complaints relative to his walking ability.

CASE 8.—A man aged 33, who had lost the left big toe by spontaneous amputation in 1931, is now in excellent health and carrying out his usual occupation during a period of five years.

CASE 9.—A man aged 42 had an ulcer of the left big toe which remained healed for six years. His resumption of smoking three years ago resulted in the opening of a small ulcer over the left external malleolus which did not, however, prevent him from carrying out his regular occupation of janitor.

CASE 10.—A man aged 28 was healed of gangrene of the left big toe five years ago. Since then he has had no symptoms nor trouble of any kind with his lower extremities and has been working at his regular occupation of taxi driver.

CASE 11.—A man aged 50, who was healed of extensive gangrene of the left foot and spontaneous amputation of all the toes, is now, five years later, in excellent physical condition in spite of the fact that he smokes occasionally.

CASE 12.—A man aged 31 was healed of gangrene of the right foot involving all the toes in 1931. He has remained well ever since and is working at his regular occupation of plumber.

CASE 13.—A man aged 49, who was healed of a painful ulcer of the right big toe four years ago, has remained completely healed, and according to a letter recently received "has never felt better in his life." His occupation is that of paint salesman, requiring constant use of his feet.

CASE 14.—A man aged 28 was healed of an extremely painful ulcer of the right big toe six years ago. Since that time he has been employed constantly in a bakery involving many hours of standing, and has had no return of his former trouble.

CASE 15.—A man aged 29 was healed of gangrene of the second toe of the right foot six years ago, and five years ago was healed of gangrene of the left middle and index fingers. Since then he has been under constant observation and has had no recurrence of any kind.

CASE 16.—A man aged 48 was healed of an ulcer of the left big toe two years ago and has remained well ever since.

CASE 17.—A man aged 38 had sustained a painful gangrenous ulcer of the second toe of the right foot seven years ago which healed after three months' treatment. He has been under constant observation ever since and is in excellent health. He is a golfer and finds no difficulty in playing 18 to 36 holes per day with no handicap.

CASE 18.—A man aged 29 was healed of gangrene of the left big toe and of the fifth toe of the left foot five years ago. He has returned to his occupation of fireman and finds no difficulty in continuing at this work. There has been no further trouble of any kind with his feet.

CASE 19.—A man aged 40 was healed of gangrene of the left big toe five years ago. Except for a single small recurrence of the ulcer which healed again after two weeks, this patient has had no trouble and has not interrupted his occupation of truck driver. At present he is in excellent condition.

CASE 20.—A man aged 23 was healed of gangrene of the fifth toe of the right foot eight years ago. He has never been bothered since, and aside from his regular occupation finds time to engage in the strenuous pastime of baseball playing.

These 20 patients have been selected from a large series that have been treated by me for thrombo-angiitis obliterans within the past ten years. Some of them have sustained the most extensive forms of massive gangrene of the extremities ever reported. The fact that these patients have remained healed for periods varying from two to eight years without economic or occupational handicap offers convincing evidence of the fact that the conservative treatment of thrombo-angiitis obliterans is worth while. It is true that during the healing stages a great sacrifice must be made by the patient from the standpoint of suffering and, in some cases, financial strain. Realising, however, that thrombo-angiitis obliterans is a self-limited disease that can be easily controlled with proper therapeutic measures, and that it is not a progressive disease as was taught heretofore, it is my opinion that the surgeon is justified in utilising every means at his disposal to heal the gangrene without recourse to permanently mutilating amputation.

In arterio-sclerosis obliterans the problem is somewhat different. Here one is usually dealing with individuals over the age of 60. In these patients the formation of collateral circulation is difficult with consequent doubt as to the ability of the body to limit the extent of the gangrene. For this reason conservatism is not often successful and amputations must be performed occasionally. This is particularly true of those cases complicated by diabetes mellitus.

PRINCIPLES OF TREATMENT

In order to comprehend the rationale of conservative therapy in thrombo-angiitis obliterans it is necessary to have a mental picture of the mechanism of healing in this disease. Starting with the fact that the main arterial tree in the extremity is occluded by the disease process, there is a simultaneous formation of new blood-vessels (collateral circulation) to supply the area deprived of its blood-supply. As the occlusion advances, the development of collateral circulation also progresses. If the obstruction is too sudden in onset, or if it progresses too rapidly, thus hindering the formation of sufficient collateral circulation, gangrene will result. If, on the other hand, the balance between occlusion and collateral remains intact, gangrene will not result. Furthermore, if the development of collateral circulation overbalances occlusion, the result is still better.

From the foregoing it is obvious that all therapy in thrombo-angiitis obliterans must be directed to the enhancement of the collateral circulation. The question of vasomotor spasm of the collateral circulation in this disease is relatively unimportant according to the concept of balance between occlusion and collateral circulation formation. For this reason the various procedures suggested for the relief of vasomotor spasm in the extremities, such as sympathectomy, are of little if any use.

In the treatment of thrombo-angiitis obliterans, the most effective measures for the improvement of the collateral circulation have, in my experience, been the following:

1. The intravenous injection of hypertonic saline three times a week over long periods of time. The solution may be given in the concentration of 2 to 5 per cent. depending upon the age of the patient, in quantities of 300 c.cm. or less. The action of the hypertonic solution consists of an apparent increase in blood volume which, in turn, produces an increased amplitude of the peripheral arterial pulses as observed with the oscillometer.
2. Heat to the extremities in the form of hot sitz baths or diathermy. Heat, however, is not necessary in those cases with ulceration or gangrene.
3. Postural exercises, as suggested by Buerger, are valuable in those cases without ulceration or gangrene.

The healing of gangrene and ulcers in thrombo-angiitis obliterans depends on the stimulation of collateral circulation and on meticulous attention to the local condition. With this combination, the natural tendency for the gangrenous tissue to demarcate and slough away is encouraged. Following the spontaneous removal of the dead tissue, granulations and epithelium form and the resulting ulcer offers no particular difficulty.

A very important feature of treatment is the *absolute prohibition of tobacco* in any form. There is ample clinical and experimental evidence of the fact that tobacco is deleterious in all forms of peripheral arterial diseases and particularly in thrombo-angiitis obliterans. Unless the patient coöperates by complete abstinence from smoking it is useless to attempt conservative treatment.

SUMMARY

Thrombo-angiitis obliterans becomes a self-limited disease if the following facts are appreciated: (1) the stimulation of collateral circulation is more important than the release of vasomotor spasm; (2) the harmful effect of tobacco must be removed entirely; and (3) careful attention to the local condition of gangrene or ulceration is extremely important.

Twenty cases of gangrene are cited with follow-up periods varying from 2 to 9 years. One patient died of coronary thrombosis; eighteen remained healed and are so far restored to their usual working capacity; and one has a small recurrent ulcer (arteriosclerosis superimposed on thrombo-angiitis) which does not hinder him in his occupation.

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SUSSEX PROVIDENT SCHEME.—The advance still being made by this scheme was shown in the report presented at the annual meeting at Brighton on Dec. 12th. No fewer than 101,325 people are entitled to benefit, and during the year there was a net increase of 16 groups which now number 572—271 in Brighton and Hove, and 301 in other parts of the country. During the twelve months £28,135 was distributed, an increase of £2174 on the previous year. The total sum was expended as follows: to the coöperating voluntary hospitals, £23,032; to associated voluntary hospitals, £105; to public assistance and education committees, £2875; refunded to members or paid direct to non-coöperating hospitals, £1338; to Queen's Nurses' Associations, £785. Since the inception of the scheme in 1921 the sum of £204,492 had been distributed. Members receiving treatment during the year numbered 19,632, those receiving in-patient treatment being 4141.

FURTHER PURIFICATION OF DAKIN AND WEST'S LIVER FRACTION

PURIFIED ANAHÆMIN COMPARED WITH ORIGINAL PRODUCT IN REGARD TO EFFECT IN PERNICIOUS ANÆMIA

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IN May, 1935, Dakin and West[1] described the preparation and partial purification of a product from liver which was effective in causing blood regeneration in pernicious anæmia. The clinical potency of material prepared by their method was confirmed by Ungley, Davidson, and Wayne,[2] acting on the request of the Medical Research Council, using a product (anahæmin) manufactured by the British Drug Houses Ltd. under the direction of F. H. Carr, D.Sc., and by Wilkinson.[3] Further steps in the purification, since described by Dakin, Ungley, and West,[4] resulted in a peptide free from aminohexose (glucosamine) and having rather more than twice the clinical potency of the earlier product. At the same time these authors discussed the chemical report by Laland and Klem[5] on the preparation of the very active product which was tested clinically by Strandell, Poulsson, and Schartum-Hansen.[6] When the glucosamine-free peptide[4] was subjected to a process used by Laland and Klem[5]—namely, adsorption on charcoal and elution by phenol—a highly potent product was obtained.

The use of phenol acording to Laland and Klem[5] has been applied to Dakin and West's original fraction, anahæmin, under the direction of F. H. Carr of the British Drug Houses Ltd. in the following manner:—

> Anahæmin is first dissolved in 2½ per cent. volume/weights of 95 per cent. phenol; anhydrous methyl alcohol is then added slowly so as to effect fractional precipitation. The first fraction is eliminated and the later fraction retained. The resulting product is of a light buff colour and contains 14·3 per cent. nitrogen; it was given the serial number 217A.

The object of the present investigation was to test this purer anahæmin (217A) clinically and to compare it in respect to potency with the original anahæmin, and with the glucosamine-free peptide described by Dakin, Ungley, and West.[4]

MATERIAL

A total of 20 cases has been treated. Of these 15 received single injections at infrequent intervals in order to find the minimum dose which would produce a satisfactory hæmopoietic effect as judged by reticulocyte response and rate of red blood-cell increase. Details are given in the accompanying Table. In the remaining 5 cases the double reticulocyte method[7] was used in order directly to compare the more purified product (preparation 217A) with the original anahæmin. All injections were given intramuscularly.

For brevity, clinical and biochemical findings other than those necessary for the present analysis are omitted, but every case was fully investigated and conformed to the criteria demanded for the diagnosis of Addisonian pernicious anæmia. Only cases with initial red blood-cell counts of under 3 millions were utilised for this investigation. There was a histamine-refractory achlorhydria in every instance. A case complicated by acute fatal infection was excluded. The preliminary control period was regarded as satisfactory if there was no significant reticulocytosis or rise of red blood-cells during a period of 10–14 days in hospital. A shorter period was allowed in cases where the erythrocyte count fell rapidly. In 4 instances (see Table, Cases 1, 4, 7, and 11) the control period for the initial injection did not completely satisfy these conditions, and in Case 5 a rise of reticulocytes began so early after the commencement of treatment that a spontaneous rather than an induced remission was suggested. The figures marked (*) are therefore excluded for purposes of quantitative comparison except where a poor response served to indicate that dosage was inadequate.

CLINICAL FINDINGS

Increased sense of well-being, improvement in appetite, relief of sore tongue and gastro-intestinal disorders, gain in weight, and other phenomena which accompany a remission in pernicious anæmia, however induced, were observed in this series. Improvement in paræsthesiæ was noted in some instances, but the possible influence of this product upon the neurological manifestations has not yet been assessed. Transient flushing or dizziness not infrequently followed injections of the original anahæmin, while urticaria or more severe disturbances, such as bronchial spasm ("asthma") or temporary cardiac syncope, have occurred in isolated instances. In the past five months during which the purer preparation has been administered to 102 cases of pernicious anæmia, either to induce or to maintain a state of remission, no reactions have been observed.†

RETICULOCYTES

As in a previous report,[2] the reticulocyte response is described as good, moderate, or poor. "Good" responses are those which reached or exceeded an arbitrary line midway between the expected maxima for intravenous [8] and for oral [9] therapy. "Poor" responses are those which fall below an arbitrary level three-fourths of the maximum for oral therapy. "Moderate" refers to peaks falling between the two levels mentioned. The responses referred to as secondary have followed immediately upon a primary response. With the second stimulus even maximal amounts of material may fail to produce a response as great as the expected maximum for the red blood-cell level in question.

The injection of 25 mg. was followed by a reticulocytosis in each of 7 cases. The responses in Cases 1, 4, 5, and 11 are excluded from consideration for reasons mentioned. Of the remaining cases, 2 showed a moderate response and 4 a poor response.

The reticulocyte response produced by 40 mg. in Case 6 was moderate. An initial dose of 50 mg. in Case 14 produced a negligible reticulocytosis; secondary responses to 50 mg. occurred in 3 instances, being maximal in Case 1B, moderate in Case 13, and poor in Case 3B. Injection of 75 mg. gave rise to a reticulocyte response which was maximal in Case 4; this was the more remarkable in that a primary response had already occurred; the maximal response in Case 7 is of doubtful significance (see above). Moderate reticulocyte responses occurred in Cases 9, 10, and 15, and a poor response in Case 8.

The frequent lack of correlation between the degree of reticulocyte response and rapidity of increase of red blood-cells observed in a previous series [2] was again evident (see Table). A good reticulocyte response usually but not invariably presaged a good increase of red blood-cells; but a poor reticulocyte response was often followed by an increase of red blood-cells just as satisfactory.

INCREASE OF RED BLOOD-CELLS

As mentioned previously,[2] cases with a high initial red blood-cell count show a smaller rate of increase of erythrocytes than cases with a low initial level. For purposes of comparison it may be recalled that the original anahæmin administered in single doses of 200 mg. to 8 cases with initial red blood-cell counts under 2 millions (average 1·57 millions) gave rise to increases of red blood-cells which averaged 0·81 and 1·36 millions in ten and twenty days respectively.

EXPLANATORY NOTES FOR TABLE

"*Days*" in every instance refers to days after the commencement of treatment, the day of the initial injection being "0."

Reticulocytes.—The expected maxima are those calculated by Bethell and Goldhamer [8] for intravenous liver extract. Actual calculations for intramuscular injection are not yet available. The expected maxima for oral liver therapy (Riddle [9]) are given *in italics*. Secondary reticulocyte responses produced by second doses of material (or previous experimental material) are given in parentheses (e.g., in Cases 1B, 3B, and 4B).

Red blood-cell increases attributable to the injection of a single dose are printed in heavy type. At the time of the second injection in Cases 1, 2, 3, 4, and 6, the red blood-cell increase following the first dose had ceased and the erythrocyte level remained below 3 millions per c.mm. These cases are included in the Table for a second time (e.g., as Case 1B) in order to show the rate of red blood-cell increase produced by the second dose.

Order of cases.—The cases have been divided into two groups: those with initial red blood-cells below 2 millions and those with the initial counts at this level or above it. In each group the cases are arranged according to the amount of material given at the initial injection. Cases receiving similar amounts of material are put in order of initial level of red blood-cells. The possible non-significance of figures marked (*) has been referred to above.

By comparison the response to 25 mg. of preparation 217A was moderately good in Case 2 but decidedly poor in Cases 3, 4, and 12. The poor response in Case 1 and the apparently excellent responses in Cases 5 and 11 are excluded for reasons already mentioned. Injection of 40–50 mg. gave moderately good ten-day increases of red blood-cells in 3 out of 4 cases having red blood-cell counts under 2 millions, and if one allows for the higher initial level, in 3 out of 5 cases with counts over 2 millions. Injection of 75 mg. gave good rates of increase of red blood-cells in Cases 4B, 8, 9, and 10 and allowing for the high initial level in Case 15 also. The moderate response in Case 7 is excluded from consideration (see above).

It will be seen that while the effect of 25 mg. was variable and often small, satisfactory responses occurred in the first ten days following the administration of 50 or 75 mg. The effect of 75 mg. was more sustained than that of 50 mg. and usually lasted fifteen days or more (Fig. 1). In cases with initial red blood-cell counts under 2 millions one estimates that 3 to 5 injections of 75 mg. at appropriate intervals will usually be sufficient to bring the level to 4·5–5·0 millions, if not to restore complete normality of the hæmatological findings.

COMPARISON OF ORIGINAL ANAHÆMIN WITH MORE PURIFIED PRODUCT (217A) BY THE DOUBLE RETICULOCYTE METHOD

Difficulties due to individual variation in response are largely overcome in the double reticulocyte method [7] whereby the two materials to be compared are administered successively to the same individual. When uniform quantities of potent material are given daily to a patient with pernicious anæmia in relapse, there is only a single reticulocyte response. But if after administering daily for 10–14 days amounts of material just sufficient to provoke a small reticulocyte response, the dose is then increased or a

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† Moderate reactions of allergic type have since occurred in a case not included in the series mentioned.

TABLE SHOWING CASES AND RESULTS

No.	Sex and age.	Amount of material given (d. = days).	Initial R.B.C. millions per c.mm.	Reticulocyte response, per cent.				Increase in R.B.C. millions per c.mm.					Arterio-sclerosis, infection, &c.	Remarks.
				Actual peak.	Day.	Expected maximum.		Days.						
						I.V.	Oral.	10	15	20	30	40		
1	F. 37	25 mg. at 0 d. 50 mg. at 11 d. O.A. 200 mg. at 32 d.	0·59	39·0*	8	61·8	*50·4*	0·28*	0·30	0·88	1·38	1·95	Pyorrhœa gross. ? bronchiectasis.	C.P. for first inj. not satis. S.C.D. + +.
2	M. 36	25 mg. at 0 d. 50 mg. at 17 and 32 d.	0·94	29·3	6	50·6	*38·0*	0·76	0·73	0·75	1·59	2·24	..	..
3	M. 32	25 mg. at 0 d. 50 mg. at 10 d. 200 mg. O.A. at 21 d.	1·00	19·6	6	47·4	*34·6*	0·17	0·23	0·63	1·80	2·63	..	..
4	F. 16	25 mg. at 0 d. 75 mg. at 11, and 27 d.	1·31	15·7*	6	38·8	*26·5*	0·34*	0·32	1·03	1·61	2·10	..	No evidence of S.R., but C.P. short.
5	F. 38	25 mg. at 0 d. 50 mg. at 21 d.	1·65	19·7*	5	29·4	*18·7*	0·86*	1·05*	1·18*	1·59	1·45	B.P. = 158/90	Retic. rise premature, ? spontaneous remission.
6	F. 69	40 mg. at 0, 20, and 40 d.	1·75	21·1	6	27·3	*17·1*	0·77	0·71	0·80	1·26	1·40	B.P. = 170/80	..
1B	F. 37	50 mg.	0·87	(48·1)	(6)	50·6	*38·0*	0·74	0·96	1·13	..	..	See Case 1.	200 mg. of O.A. gave no further R.R.
3B	M. 32	50 mg.	1·17	(16·0)	(8)	41·5	*29·0*	0·46	..	..	..	..	See Case 3.	200 mg. of O.A. gave further R.R. of 19 per cent.
2B	M. 36	50 mg.	1·68	..	..	..	..	0·86	0·83	0,44	..	..	See Case 2.	..
7	F. 61	75 mg. at 0 d.	1·11	40·5*	6	44·3	*31·7*	0·73*	0·69*	0·90*	1·22*	..	B.P. = 182/70	Too ill for C.P. Retics. 0·4 for first 3 days and no rise R.B.C. in 4 days. Not satisfactory.
8	F. 54	75 mg. at 0 d.	1·25	16·1	7	38·8	*26·5*	0·83	1·09	1·35	..	..	B.P. = 160/88	C.P.: slight reticulocytosis on inactive material, but grad. fall of R.B.C.
9	M. 70	75 mg. at 0 d.	1·50	25·2	6	33·8	*22·3*	0·88	1·38	0·44	..	..	Pyorrhœa slight. B.P. = 164/80	..
10	M. 63	75 mg. at 0 d.	1·55	25·1	6	31·5	*20·4*	1·17	1·23	..	..	..	B.P. = 200/94 R.A.: sl. thickening.	C.P.: slight reticulocytosis on inactive material with fall of R.B.C.
4B	F. 16	75 mg.	1·65	(26·8)	(6)	29·4	*18·7*	0·87	0·94	..	..	..	See Case 4.	..
11	M. 38	25 mg. at 0 and 20 d. 50 mg. at 30 d.	2·02	7·7*	7	23·5	*14·1*	0·77*	0·86*	1·84*	1·64	2·07	..	Retics. reached 6·2 per cent. in C.P., but no rise of R.B.C. in 8 days.
12	M. 57	25 mg. at 0 d. 50 mg. at 15 d.	2·02	7·8	5	23·5	*14·1*	0·24	0·26	0·56	..	..	..	..
6B	F. 69	40 mg.	2·55	..	..	..	..	0·46	0·53	0·60	..	..	See Case 6.	..
12B	M. 57	50 mg.	2·28	..	..	..	..	0·60	..	..	..	..	See Case 12.	..
2C	M. 36	50 mg.	2·51	..	..	..	..	0·84	0·77	..	..	..	See Case 2.	..
13	F. 57	50 mg. at 0 d. 75 mg. at 16 d. 75 mg. at 31 d.	2·54	(9·7)	(5)	15·5	*8·4*	0·36	0·23	..	0·54	1·06	..	C.P.: response to previous oral therapy had ceased; R.B.C. falling.
14	F. 51	50 mg. at 0 d. 150 mg. at 10, 17, 24 d., &c.	2·74	2·2	8	12·7	*6·6*	0·30	0·53	0·75	..	..	B.P. = 224/120. R.A.: sl. thickening.	S.C.D. slight.
15	M. 59	75 mg. at 0d.	2·80	5·9	7	11·4	*5·7*	0·67	0·80	0·36	..	..	B.P. = 184/97. R.S.: sl. thickening.	S.C.D. + +.

ABBREVIATIONS

R.B.C. = red blood-cells. Retic. = reticulocyte. R.R. = reticulocyte response. B.P. = blood pressure (systolic and diastolic). R.A. = radial arteries. S.C.D. = subacute combined degeneration of the cord. C.P. = control period. Satis. = satisfactory. O.A. = original anahæmin. S.R. = spontaneous remission. I.V. = intravenous.

more potent product substituted, a secondary reticulocytosis may be expected. When the potency of the material given in the second period is equal to or less than that given in the first period, no such secondary response is observed. It is essential that the material given daily in the first period should be insufficient to produce a maximal response, otherwise no secondary reticulocytosis can be expected. This method has already proved useful in comparing the potency of different liver fractions (Dakin, Ungley, and West [4]).

In the following experiments small amounts first of the original anahæmin and then of the recent product, both suitably diluted to ensure accuracy of dosage, were injected daily for successive periods of ten days. (The results are summarised in Fig. 2.)

Experiment 1.—Mrs. A, aged 67, had considerable thickening of the radial arteries but no hypertension. After a control period of 8 days during which a small reticulocytosis (6·4 per cent.) was allowed to subside and red blood-cells and hæmoglobin diminished slightly, 7·5 mg. of original anahæmin was injected daily for 10 days. From an initial red blood-cell level of 0·93 million per c.mm. there was a reticulocyte crisis reaching 40 per cent. on the 5th day, a peak not far short of the maximum (47·4 per cent.) expected for intravenous therapy at such a level. At the same time the red blood-cell count increased to 1·95 millions in 10 days. From the 10th–19th days 3 mg. of preparation 217A was administered daily. The reticulocytes which had fallen to 4·4 per cent. continued to decrease gradually and there was no secondary response. Red blood-cells reached 2·71 millions with hæmoglobin 41 per cent. at the 20th day, and without further therapy except iron increased to 3·57 and 3·96 millions at the 30th and 40th days respectively.

In this experiment, since the daily injection of 7·5 mg. of original anahæmin unexpectedly gave rise to an almost maximal reticulocyte response, the absence of a further response with 3 mg. of preparation 217A during the second period was not significant and no comparison of potency could be made.

In subsequent experiments the daily dose of original anahæmin for the initial period was reduced to 5 mg. and later to 4 mg.

Experiment 2.—Mr. B, aged 72, had moderate thickening of the radial arteries but no hypertension. During the first 9 days in hospital the reticulocytes did not exceed 1·8 per cent. and the red blood-cell count and hæmoglobin fell slightly. The daily injection of 5 mg. of original anahæmin for 10 days from an initial red blood-cell level of 0·9 million was followed by a reticulocytosis of 13·8 per cent. on the 7th day. During the second period of 10 days, 2 mg. of preparation 217A was injected daily. The reticulocytosis from the first period had not subsided, but fell to 6·6 per cent. by the 13th day, after which a secondary response occurred reaching 15·4 per cent. on the 15th day.

During the first period red blood-cells increased by 0·5 million, and in the second period by 1·07 millions. No further therapy was given but by the 35th day red blood-cells numbered 3·21 millions.

The secondary reticulocytosis in this instance reached a higher level than the primary response, but even had it been smaller in magnitude the significance would have been the same—the material given in the second ten days had greater hæmopoietic potency than that given in the first period.

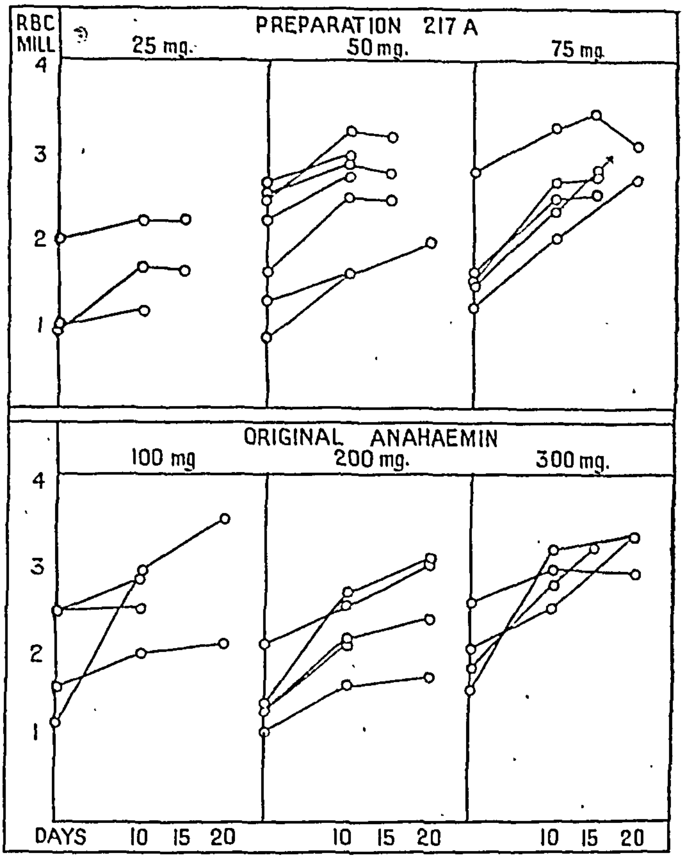

FIG. 1.—Rates of red blood-cell increase in 10, 15, or 20 days after single injections of 25, 50, and 75 mg. of preparation 217A. Responses to the original anahæmin, including several obsc [illegible] are offered for comparison. (It will [illegible] 100 mg. of original anahæmin gave rise to [illegible] of red blood-cells, possibly due to the [illegible] with an induced remission.) For clarity many figures for days intermediate between 0 and 10 and between 10 and 20 are omitted. Not all the curves continue for a full 20 days: when the dose was inadequate the increase of red blood-cells sometimes ceased prematurely or was so gradual that a further injection became necessary before the completion of this period. Figures marked (*) in the Table were considered unsuitable for comparative purposes and are not shown.

A more clear-cut experiment might have resulted had the injections of original anahæmin been continued for a further two or three days to allow the prolonged primary reticulocytosis to subside somewhat before the second period was started.

Experiment 3.—Mrs. C, aged 47, had pernicious anæmia with subacute combined degeneration of moderate degree. There were two septic teeth which were not removed until after the completion of the experiment. After a satisfactory control period 5 mg. of original anahæmin was injected daily for 10 days, from an initial red blood-cell level of 1·76 millions per c.mm. There was a reticulocyte response reaching 8·6 per cent. on the 6th day and a rise of red blood-cells to 2·51 millions by the 10th day. From the 10th to 19th days 1·75 mg. of preparation 217A was injected daily. There was a slight but orderly crisis of reticulocytes reaching 3·1 per cent. on the 14th day. In view of the doubtful significance of such a small reticulocytosis, a third period was commenced, 5 mg. of original anahæmin being given from the 20th to 29th days. There was no reticulocytosis whatever.

The slight reticulocytosis in the second period may or may not be regarded as sufficient to indicate that 1·75 mg. of preparation 217A had a greater potency than 5 mg. of original anahæmin, but certainly the absence of a reticulocyte response in the third period suggests that 5 mg. of original anahæmin had at any rate no greater potency than 1·75 mg. of preparation 217A.

Experiment 4.—Mr. D. aged 50, had dental caries and pyorrhœa, attention to which was deferred until after the conclusion of the experimental period. During the first 9 days in hospital reticulocytes did not exceed 1·2 per cent., and there was no increase of red blood-cells. Original anahæmin 5 mg. was injected daily for 10 days. From an initial red blood-cell level of 1·37 millions per c.mm. there was a reticulocyte response reaching a peak of 33·7 per cent. on the 8th day. On the 10th day red blood-cells numbered 2·13 millions, and the percentage of reticulocytes was falling rapidly. Preparation 217A 2 mg. was given daily from the 10th to the 19th days, resulting in a secondary reticulocytosis reaching 7·8 per cent. on the 16th day. The red blood-cell count improved to 3·01 millions on the 20th day and without further therapy increased to 3·57 millions on the 30th day.

On the 14th day the temperature rose suddenly to 103·4° F., and from then until the 18th day there was diarrhœa with mucus but no blood and pyrexia not exceeding 99°–100° F. The infection was part of an outbreak in which *B. dysenteriæ* Flexner was incriminated.

The mild dysenteric infection in this case may or may not have had an inhibitory effect on blood regeneration in the second period, but there was nevertheless a definite and orderly secondary reticulocyte response.

Experiment 5.—Mrs. E, aged 47, had mild neurological involvement but neither sepsis nor arterio-sclerosis. After a control period which showed the case to be suitable for clinical test, 4 mg. of original anahæmin was injected daily for 10 days. From an initial red blood-cell level of 1·38 millions there was a reticulocyte response reaching 21·2 per cent. on the 7th day. By the 10th day red blood-cells had increased to 2·21 millions and the reticulocyte count had fallen to 6·0 per cent. From the 10th to 19th days 1·75 mg. of preparation 217A was injected daily. Reticulocytes fell gradually to 2·3 per cent., after which there was a secondary response reaching 7·8 per cent. on the 16th day. Red blood-cells increased to 2·90 millions by the 20th day.

This experiment clearly indicated that 1·75 mg. of preparation 217A was superior in potency to 4 mg. of the original anahæmin.

As judged by the double reticulocyte method therefore the potency of 5 mg. of original anahæmin was exceeded by 2 mg. of preparation 217A (Experiments 2 and 4), and equalled or possibly excelled in potency by 1·75 mg. (Experiment 3); and 4 mg. of original anahæmin was surpassed in potency by 1·75 mg. of the more purified product (Experiment 5). Incidentally, it will be observed that 17·5 to 50 mg. of material subdivided into ten daily doses gave rise to effects considerably greater than one would have expected from the administration of the same quantity at a single injection.

SUMMARY AND CONCLUSIONS

Dakin and West's original liver fraction (anahæmin) has been subjected to further purification. The resulting product has been tested in 20 cases of pernicious anæmia and compared with the original anahæmin and certain preparations thereof in respect to the production of reticulocyte response, increase of red blood-cells, and clinical improvement.

On the whole the reticulocyte responses and increments of red blood-cells differ little from results reported and others unpublished which were obtained with certain highly purified products (preparation B and the glucosamine-free preparation 31[4]): while the responses to 25 mg. were often small, 50 and 75 mg. mostly gave satisfactory results comparable to those produced by 200 mg. of the original anahæmin. The variations in response to a given dose even in individuals with similar initial red blood-cell levels were so great, however, that it was difficult accurately to compare the potency of the two products on the basis of effects observed.

This difficulty was to some extent overcome by use of the double reticulocyte method, the materials to be compared being administered daily to the same individual in consecutive periods of 10–14 days. As judged by the results of such experiments the potency of 5 mg. of original anahæmin was exceeded by 2 mg. of the more purified fraction, and at least equalled by 1·75 mg. thereof; while 4 mg. of original anahæmin was surpassed in effect by 1·75 mg. of the newer product. These findings are believed to indicate that the more purified product has not

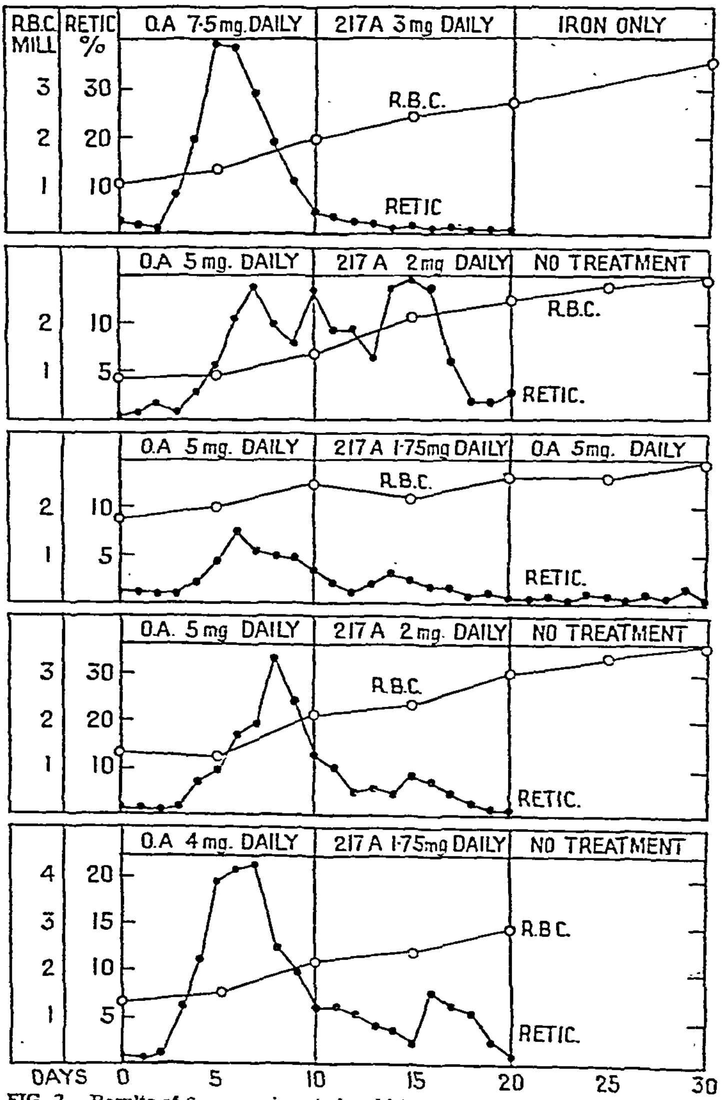

FIG. 2.—Results of five experiments in which the double reticulocyte method was used to compare the more purified product (217A) with the original anahæmin (O.A.). In the first experiment 7·5 mg. of the original anahæmin daily caused a maximal reticulocytosis, so that no further response could be expected. In subsequent experiments, when the dose of original anahæmin was reduced to 5 mg. and finally to 4 mg., secondary responses occurred indicating the superior potency of preparation 217A in the amounts given.

less than two and a half times the potency of the original anahæmin: an estimate which is in keeping with the results obtained with single injections of 25, 50, and 75 mg.

It is a pleasure to thank members of the staff of the Royal Victoria Infirmary, Newcastle-upon-Tyne, and of the Newcastle General Hospital for their kind coöperation, and for allowing me access to their patients. I am indebted to Mr. R. Moffett and Mr. J. Wilkinson for valuable technical assistance. The work has been carried out with the assistance of a grant from the Medical Research Council, and under the tenure of a Leverhulme research scholarship of the Royal College of Physicians of London.

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AN UNUSUAL CASE OF SPLENIC ANÆMIA TREATED BY SPLENECTOMY

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The following case has been deemed worthy of record on account of the difficulties in diagnosis in a country where malaria and other forms of splenomegaly are common, and because of a remarkable recovery from what appeared to be a fatal disease, after splenectomy and multiple blood transfusions.

The patient, a farmer aged 26, had resided in Southern Rhodesia for 11 years, and had suffered during this time from frequent attacks of genuine malaria. His illness began in October, 1935, and he was admitted to the Hospital for Tropical Diseases on Dec. 15th, 1935—and was ultimately discharged on June 6th, 1936.

In February, 1929, the patient had hæmatemesis several times, and after admission to hospital made a good recovery. The spleen was markedly enlarged at this time. At the time the hæmatemesis came on he was in bed, being treated for malaria. Melæna occurred on Oct. 20th, 1935, and several times subsequently. On Nov. 22nd, after leaving Capetown, he had a similar dark motion, and soon after vomited up fresh bright red blood—about 3½ pints according to the patient. This caused a severe anæmia from which the patient slowly recovered. On landing in England his appetite was excellent; bowels restive, no abdominal pain, but breathless in the morning, and with swollen, œdematous ankles.

On examination the tongue was clean and pale, as were all the mucous membranes. Large distended veins stood out on the chest and abdomen and at the junction of the limbs with the trunk. The spleen was enlarged, tender, and firm. Dullness extended upwards into Traube's space, and the heart was displaced upwards. No definite edge to the liver was ascertainable, but there was a fullness in the right hypochondrium on palpation. In the knee-elbow position evidence of ascites was obtained. A Corrigan-like pulse was observed. The blood pressure was 130/60 mm. Hg. Œdema of the ankles was present. Area of cardiac dullness was within normal limits—and a systolic murmur was heard down the left side of the sternum. The sounds were of poor quality, being those compatible with the very severe anæmia and with the upward displacement of the heart. Reduplication of the heart's second sound was present at intervals. The fundi were pale—but there were no evidences of hæmorrhages.

Table showing Fortnightly Record of Progress

Date.	Hb. %	R.B.C.	W.B.C.	Transfusions.	Treatment.	Weight	Platelets.
1935 Dec. 14th	40	3,000,000	3,200	..	..	10 st. 9 lb.	..
27th	66	3,700,000	..	Severe hæmatemesis. 7 transf. = 3½ pts.	Ascites severe. 1 paracentesis = 9 pts.	..	..
1936 Jan. 11th	20	1,520,000	..	Hæmatemesis. 5 transf. = 2½ pts.		..	..
26th	38	1,900,000	..	2 transf. = 1 pt.	4 paracenteses = 19 pts.	8 st. 11 lb.	..
Feb. 12th	25	1,940,000	..	4 transf. = 2½ pts.	1 paracentesis = 4½ pts.	..	..
26th	42	2,730,000	3,100			..	..
29th	48	3,330,000	36,000 after splenectomy.	1 transf. = 1 pt.	Splenectomy.	..	Pre-op. 63,000; post-op. 160,000
Mar. 10th	40	3,090,000	17,000	3 transf. = 2½ pts.	Subphrenic abscess opened.	..	300,000
24th	48	3,150,000	17,000	2 transf. = 1 pt.	..	..	..
Apr. 8th	34	1,920,000	23,000	..	Ascites began. 2 paracenteses = 8 pts.	..	..
23rd	50	2,540,000	12,000	2 transf. = 1 pt.	Salyrgan injected, Apr. 21st–May 25th.	..	..
May 7th	48	2,460,000	10,000	..		..	..
25th	60	3,720,000	14,000	..		..	..
June 4th	75	4,060,000	9,000	..	..	9 st. 12 lb.	Discharged
July 21st	78	4,020,000	14,000	..	..	11 st.	..
Oct. 23rd	72	4,060,000	15,000	..	..	11 st. 2 lb.	..

transf. = transfusions. pts. = pints.

Treatment and progress.—After having liver injections (Campolon) and large doses of iron, a large hæmatemesis occurred on Jan. 6th, 1936. On Jan. 7th there was a second, followed by exhaustion and air-hunger. Intravenous glucose and saline followed by repeated blood transfusions saved the patient's life. (Unfortunately continuous-drip blood transfusion was not available at this time.) Further hæmatemesis occurred, succeeded by profuse ascites necessitating several paracenteses.

Efforts to better the patient's condition were not successful, but, in spite of his anæmic and enfeebled condition, a splenectomy was successfully performed by Mr. C. Naunton Morgan on Feb. 29th. The spleen was delivered with difficulty through a left paramedian incision and measured about 15 in. long; it was engorged with blood and had a very broad pedicle. A small accessory spleen (splenunculus) lay near the hilum. Only a few adhesions were felt, around the diaphragm, but these caused troublesome hæmorrhage later on after removal of spleen. There was no obvious cirrhosis of the liver and the colon appeared normal. Intractable hæmorrhage occurred after the pedicle was clamped, but this was eventually controlled with gauze packing. Owing to his poor condition during the operation the patient had to receive a blood transfusion on the table.

Pathology.—The spleen, after draining off the blood, weighed 1230 grammes (2¾ lb). There was no obvious macroscopic fibrosis. Microscopic sections showed the generally accepted histological picture of splenic anæmia. The splenic reticulum had become thickened so as to form a distinct fibrous meshwork in the Malpighian corpuscles and irregularly throughout the splenic pulp; in fact there was diffuse hypertrophy of the reticulum and generalised fibrosis. These specimens have been examined by Prof. J. W. McNee and he agrees with this description.

Convalescence was retarded by many complications. Ascites recurred frequently, nearly always preceded by colicky abdominal pains and often accompanied by œdema of the ankles. So rapid did the fluid accumulate that, ten days after the operation, the laparotomy stitches burst and the wound had to be resutured. Three weeks after, matters were further aggravated by a large subphrenic abscess which was drained and from which a large hæmorrhage, which almost proved fatal, occurred three days later. Originally, the ascites was treated by paracentesis alone, but after a time it became obvious that this was insufficient. The daily urinary output averaged 35 oz. with an intake of 2 pints. Several injections of Salyrgan were therefore given and immediately the output rose to nearly 70 oz. daily with the cessation of ascites.

The patient has done exceedingly well since leaving hospital. When examined on July 21st he had put on 28 lb. in weight and, with the exception of slight tenderness in the splenic area and slight œdema over the tibiæ, was in exceptionally good health. In October he had the appearance of good health and weighed 11 st. 2 lb. The red cells were just over 4,000,000 and the hæmoglobin 72 per cent.; there was a leucocytosis of 15,000. The red cells themselves showed a little distortion and contained chromatic remains (Jolly's bodies). It therefore appears that the blood picture is not yet normal.

DISCUSSION

The chief feature of interest in this case is undoubtedly the frequent recurrence of ascites after splenectomy until salyrgan was injected. It was thought at first to be due to advanced cirrhosis of the liver, although no evidence of this could be obtained at the time of operation. An explanation of the post-operative ascites and its resolution can, under the circumstances, be merely speculative.

Cardiovascular and renal disease were never in evidence in the later stages and in any case, in view of the patient's present good health, are extremely unlikely to have been the initial cause of the outpouring of this immense amount of transudate. Furthermore, no evidence of a renal inefficiency by the examination of the urine was ever obtained. Hepatic cirrhosis as a factor in the production of ascites must be considered. But here again recovery, such as has taken place, would be most unlikely. As has already been mentioned, this was not apparent at operation, and it is difficult to believe that cirrhosis of the liver should occur so soon after removal of the spleen.

The most likely factor in the production of ascites in a case of this description is undoubtedly a thrombosis of the portal spreading from the splenic vein—a well-recognised complication of splenectomy. If this be granted as the most probable cause, then the subsequent disappearance of the ascites may have been due to either of two factors: recanalisation of the portal vein, or the hepatic artery taking over the complete blood-supply of the liver after blockage of the portal vein. Recanalisation of the portal vein in this case appears to us unlikely for the patient's recovery was much too rapid to be explained in this manner.

There is support for the second alternative factor. From the numerous transfusion experiments that have been carried out on the blood-supply of the liver, it is now well established that the portal and hepatic circulations do come into intimate connexion at some point in the liver, although the exact sit of anastomosis is still in doubt.* Further, in port cirrhosis, a hypertrophy of the hepatic artery developed in order to maintain the liver circulatio Lastly, on necropsies in cases of portal thrombosi the liver often appears normal in all respects, an although some of these appearances may be explicab by recanalisation of the portal vein, others can onl be due to such an anastomosis of the hepatic arter This latter explanation, therefore, appears to us t be the most likely.

CONCLUSION

We report this case on account of the ultimat success of a very formidable operation and remov of an exceptionally large spleen at a time when th outlook for the patient seemed particularly hopeles It shows the value of repeated blood transfusio (27 were given in all), which undoubtedly saved th patient's life, and the remarkable action of salyrga in removing the ascites after repeated paracentes had failed.

A FAMILIAL DYSCHONDROPLASIA ASSOCIATED WITH ANONYCHIA AND OTHER DEFORMITIES

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FORMERLY HOUSE PHYSICIAN AT KING'S COLLEGE HOSPITAL, LONDON

During the latter part of the last century ther have been a number of publications about sporadi cases of congenital absence of the patella.[1]

In 1897 Muirhead Little[2] collected 42 cases of th condition and classified the associated deformities. H describes two sisters, both of whom had absent patell combined with double talipus equinovarus. The fathe had been operated on for club-foot and had deforme knees. The grandfather also was said to have some foo deformity. A similar familial absence of patellæ wa noted by Pearson.[3] Muirhead Little also mentio that he had a note from Mr. William Sedgwick describin a family of four generations with no patellæ and n thumb-nails—there were 18 in the family. No mentio is made as to whether every member was affected o whether the two deformities were associated. In 191 however, Firth[4] published an account of a family i which this association was made clear. In this famil absence or hypoplasia of the patella and deformity of th finger-nails were noted in the mother and 6 of the childre the 2 other children being normal. The two deformitie were either both present or both absent. A further poin of interest was that the mother and two children showe inability fully to supinate or extend the forearm. Th actual cause of this defect was not stated. Firth als mentions that John Thomson of Edinburgh had record of a similar family consisting of father, mother, and children. The mother and 5 of the children showed th patellar hypoplasia and deformity of the nails, whil the father and the remaining children were normal. Th mother furthermore was unable to straighten her righ forearm. Further light on the elbow deformity is throw by Oesterreicher,[5] who described a family of five generation in which absence of the patellæ and deformed nails wa associated with congenital dislocation of the radius. O the 11 members with patellar and nail deformity, 7 ha bilateral luxation of the head of the radius.

Turner[6] again discovered two families showing simila deformities. In the one family 26 out of 29 had no patella and deformed nails, in the other, 27 out of 41 showed bot deformities. In both families some of the deforme members showed congenital dislocation of the head of th radius.

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* McNee, J. W.: Brit. Med. Jour., 1932, i., 1020.

Aschner collected in 1928 eight families with patellar hypoplasia. In three of these there was the associated nail deformity. In June, 1934,[7] he reviewed Turner's cases and pointed out that the three most constant abnormalities were: (1) congenital patellar defect; (2) congenital anonychia; and (3) congenital luxation of the head of the radius.

This present paper concerns the family described by Firth in 1912. The family has now increased in numbers, and deformities are now noted that were not then observed.

THE DEFORMITIES

The conditions involve derivations both of the mesoderm—the bony abnormalities—and of the ectoderm—the nails.

The knees.—Clinically the knees are flattened anteriorly and can be slightly hyperextended. The patellæ are either completely absent or vestigial. The tubercle of the tibia is markedly prominent, and the internal condyle of the femur is enlarged. Genu valgum is present in some cases, as might be expected with overgrowth of the internal condyle. Radiograms confirm these findings. Turner's[6] cases too show (*a*) the patellar hypoplasia (*b*) the prominent tibial tubercle, and (*c*) the large internal condyles.

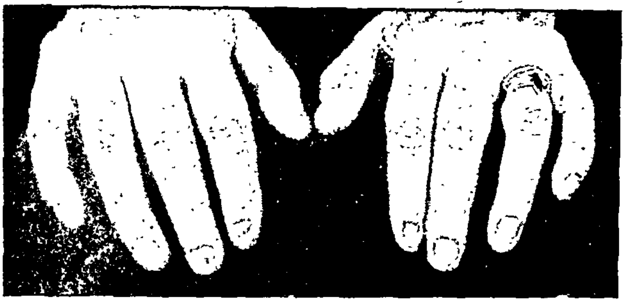


FIG. 1.—The nail deformity, showing the grooves and concavities in the index and second fingers.

The elbow.—Both the lower end of the humerus and the upper end of the radius are deformed. Clinically the forearm cannot be fully extended and supination is very limited. The internal condyle of the humerus is markedly prominent and posterolaterally the head of the radius can be felt jutting out. Radiograms show, in some cases, a lump on the lower three inches of the posterior surface of the humerus. It appears as if the lower end of the bone has been tilted forwards, and this no doubt partly accounts for the inability fully to extend the elbow. The lower end of the humerus is increased both anteroposteriorly and laterally with a very large internal condyle but a very small capitellum. Owing to the size of the capitellum, the head of the radius has little bone with which to articulate. It tends to be luxated laterally. In the extreme case it is completely dislocated and the head is vestigial and juts out posteriorly. As might be expected in these cases the carrying angle is greatly increased. Turner's cases[6] too show all these deformities.

The shoulder girdle.—Clinically Turner noted considerable prominence of the acromial end of the clavicle, but this was not obvious in this family. In the radiograms the head of the humerus tends to be smooth and underdeveloped and its articular surface faces upwards to an unusual degree. Turner notes only that in his cases the scapulæ were undersized, but in the family here reported the scapulæ showed a very definite deformity, there being much thickening of the lateral border, which has a convex edge. This can only be diagnosed radiographically. It appears to be a definite abnormality hitherto unobserved.

The pelvic girdle.—Clinically the pelvis is normal, but the heads of the femora may be abnormal. In one case coxa valga is present on both sides, in another a congenital hip on one side. Deformity of the ilia seems to be the only constant feature. There is an increase in the normal concavity on the external surface of the ilium, and the crest of the ilium seems to be increased posteriorly.

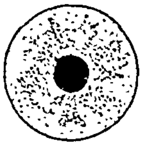


FIG. 2.—Diagram showing typical leaf-shaped discoloration of iris.

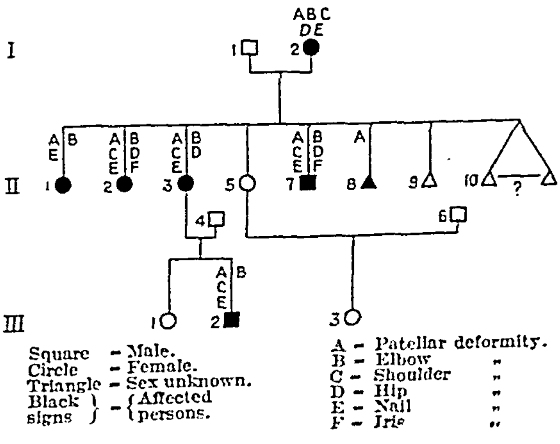
The nails.—The nail deformity consists typically of a nail with a base normal in appearance but very thin and soft (Fig. 1). Distally the nail tends to disappear and merge into the fleshy top of the finger, so that there is no free end of the nail. This type of deformity affects chiefly the thumb-nails. Secondarily, the nail may grow and be of normal consistency but instead of having a convex surface it is concave and spoon-shaped. Often too it possesses a longitudinal central ridge with deep concavities each side. The most deformed nail is always the thumb. The index and middle finger-nails are harder, have a free end, but usually have the groove and concavities, but the ring finger has usually and the little finger has always a normal nail. This corresponds closely to the nail deformities in Turner's cases.

The irides.—Another abnormality was seen in the iris. Instead of being one colour throughout, around the circumference there is a clear-cut zone of paler pigment, and the darker part of the iris centrally is shaped roughly like a clover leaf (Fig. 2). This is most pronounced in the one member of the family with blue eyes. The darker eyes do not show it so distinctly. This deformity has not been hitherto described. Whether it is part of the syndrome is uncertain.

The family now consists of three generations.

In the first generation the mother (I/2) shows all the deformities, except for normal irides. The father (I/1) is normal. There are no collaterals, but the mother thinks that some of her uncles had double-jointed knees.

There have been nine children in the next generation. Twins and two other children have died (II/8–11). As far as is known three of these children were normal, but the fourth (II/8) had absent patellæ. Of the five living, the eldest, a girl (II/1), has patellar, elbow, and nail deformities. The second, a girl, has all six deformities. The third, a girl, has all the deformities except the irides.



The fourth, a girl, is normal. The sixth, a boy, has all six deformities.

The third generation has three members. The one normal member of the second generation (II/5) has a normal girl. The third girl of the second generation (II/3) has one normal girl and one son with the nail, the elbow, the patellar, and shoulder deformities.

CONCLUSION

All the above deformities appear to be genetically associated. It seems that Aschner is wrong in singling out congenital anonychia, patellar hypoplasia, and subluxation of the head of the radius, and describing this as a congenital familial syndrome. It seems that deformity of the ilium and thickening and convexity of the lateral border of the scapulæ are also part of the syndrome. Whether the peculiar pigmentation of the iris is also an allied inherited abnormality is uncertain.

I am indebted to Dr. Firth for introducing me to the family and giving me permission to use the notes and radiograms of the patient who was in King's College Hospital under his charge, and also for his assistance in getting other members of the family X rayed.

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RADIOGRAPHY IN THE DIAGNOSIS OF CHRONIC RHEUMATIC ARTHRITIS *

BY S. GILBERT SCOTT, M.R.C.S. Eng., D.M.R.E.

HON. RADIOLOGIST TO THE BRITISH RED CROSS CLINIC FOR RHEUMATISM, LONDON; CONSULTING RADIOLOGIST TO THE LONDON HOSPITAL

AN early and correct diagnosis must necessarily be the basis of any form of treatment. While this is true of all diseases, it is especially significant in a condition such as chronic rheumatic arthritis where it seems that progress in therapy is being hampered by the inefficiency and inaccuracy of the diagnosis. First of all it is important to appreciate that radiography can supply the only direct means of recording pathological changes during life and that the value of the examination must obviously be dependent on the correct interpretation, by no means an easy task. Although very large numbers of radiograms are being taken every day at spas and other rheumatism centres, their influence on the diagnosis, prognosis, and treatment is negligible. Apparently the examination is usually undertaken more from curiosity than anything else.

The examination is at present carried out in a haphazard manner; no effort is made to standardise position or technique, and the interpretation of radiograms has often to be left to the physician in charge, who must necessarily have but a superficial knowledge of general radiology. While the first error can be rectified, it is not so easy to suggest a remedy for the second; there are not enough qualified radiologists who have the time and opportunity for the study of rheumatism. Radiologists at the general hospitals see little of rheumatic arthritis because these institutions display little interest in this important and widespread disease. At any rate it would seem that the employment of a fully qualified radiologist would not be feasible at all rheumatism centres.

MISTAKES

My experience at the British Red Cross Clinic goes to show that the clinical diagnosis of rheumatism presents considerable difficulty and is often definitely unreliable. Quite 10 per cent. of the cases sent up to the clinic for advice have been shown radiographically to be suffering from some pathological condition in no way related to rheumatism. All these patients have been diagnosed as having some form of rheumatism and have undergone treatment—often over long periods. Mention of some of the mistakes in diagnosis may be of interest, given in the order of their frequency:—

(1) Secondary *carcinoma* of the vertebræ and pelvic bones quite frequently gives rise to the diagnosis of lumbago, sciatica, or fibrositis.

(2) Several cases of *Paget's disease* involving the bones of the hip and *Charcot's disease* of this joint have been mistaken for osteo-arthritis of the hip-joint.

(3) *Carcinomatosis* gives rise to wandering pains in various parts of the body difficult to distinguish clinically from muscular rheumatism or fibrositis.

(4) The pain caused by an *endosteal sarcoma* of the humerus was in one case diagnosed as brachial neuritis until spontaneous fracture occurred during massage and manipulation.

(5) Cases of early *tuberculous disease of the kidney* and *stone in the ureter* have been sent for a radiological examination with the diagnosis of lumbago and fibrositis.

(6) A case of *multiple enchrondroma* of the hands and feet was mistaken for tophaceous gout.

(7) The pains associated with early *spondylitis adolescens* are frequently diagnosed clinically as muscular rheumatism.

It is a safe working rule to have an X ray investigation if pains suggestive of rheumatism are localised to the spine or pelvis or do not respond to treatment within a reasonable period. Too often chronic pain in the neighbourhood of any joint is "tagged" as rheumatism unless evidence of some other cause is readily forthcoming. Then again the personal equation not infrequently influences the clinical diagnosis.

Of course the radiological examination can never take the place of the clinical examination. Nevertheless it should always form part of the general investigation, and if this were done errors of diagnosis such as are mentioned above would become less frequent. It is not correct to say that a diagnosis can *never* be arrived at from the radiographic findings alone—that is, independently of the clinical history. The radiographic evidence, for example, is so definite in such cases as fracture, stone in the kidney, or extensive organic disease of the stomach that the clinical history is not essential to the diagnosis.

EVIDENCE FROM THE HAND

In a book recently published,[1] I have drawn attention to the information that can be obtained from a "standard" radiogram of the hand—how it is possible to detect the early onset of arthritis, to identify the various types, and to determine from the changes noted radiographically in the hand what particular variety of arthritis may have attacked a major joint. This method has proved to be of considerable value at the British Red Cross Clinic and elsewhere, and its practical use is illustrated by the two following cases.

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* Based on a paper read at the fifth International Rheumatic Congress held at Lund and Stockholm in September, 1936, under the auspices of the Ligue International contre le Rhumatisme.

[1] Scott, S. G.: Radiological Atlas of Chronic Rheumatic Arthritis (the Hand), London, 1935.

CASE 1.—A man of generous proportions, one who enjoyed the good things of this world, was suddenly stricken down with a severe attack of lumbago. As this refused to respond to treatment the "wise men" decided, as the symptoms appeared to be infective in origin, that the ritual of panodontectomy should be observed. This was followed by vaccine therapy, but the symptoms remained unaltered. In due course removal of the appendix and gall-bladder was considered. At this late stage (one year) a radiographic examination of the back was suggested. This was negative, but a diagnostic radiogram of the hand showed several large gouty deposits indicating the group to which it belonged; the hand was symptom-free. Fortunately in this case a drastic cutting down of the quantity of the patient's food and drink resulted in a spectacular disappearance of symptoms.

CASE 2.—A young woman presented the typical clinical picture of rheumatoid arthritis with the spindle-shaped finger-joints, muscular atrophy, and general debility. She became progressively worse during six months' treatment. A diagnostic radiogram of the hand showed no disturbance of bone calcium such as is characteristic of rheumatoid arthritis. Radiographically this case was identified as an infective arthritis, not rheumatoid. This report called for a more extensive clinical investigation which disclosed evidence of a toxic thyroid and with appropriate treatment complete recovery resulted.

I suggest that both the clinical and radiological diagnosis or grouping should be included in the clinical notes irrespective of whether they are in agreement. As experience increases the true value of each examination will be established.

It has been stated that if the changes in the bone demonstrated radiographically are slight they must be unreliable. Surely it is the slight changes that are so important; but only if their true significance is appreciated, for they must necessarily represent the early signs of onset, and this at a period when treatment should be effective. These slight and often insignificant changes are frequently overlooked by the inexperienced. Advanced cases can only be of academic interest.

CONCLUSION

It is clear then that the full value of the radiological examination is not at present being attained, but it is not easy to decide how this can be remedied. The ideal, of course, would be for a fully qualified radiologist with a general knowledge of the clinical side of rheumatism to be responsible for the interpretation of radiograms at the chief rheumatism centres. While this ideal may be unattainable it should at least be possible to improve radiological technique. Standardisation of position, standardisation of the quality of the radiograms, and the use of serial radiograms should replace the slipshod methods now in use. Standardisation of technique combined with improved interpretation of radiograms should enable the radiologist to help in differential diagnosis, classification, early diagnosis, prognosis, and estimation of the effect of treatment.

If real progress is to be made in our knowledge and treatment of rheumatism, we must retain an open mind and be prepared to alter our views very considerably.

MEDICAL SOCIETIES

HUNTERIAN SOCIETY

AT a meeting of this society held on Dec. 14th, with Mr. H. L. ATTWATER, the president, in the chair, a discussion on

Frequency of Micturition in the Adult

was opened by Mr. A. E. ROCHE. The bladder, he said, originated from the proximal part of the allantois and from the ventral part of the cloaca, and was only found in reptiles, birds, and mammals. Its function was to convert a continuous secretion into a discontinuous excretion, the bladder contents being propelled away from the body, which was thus kept dry. With the complete failure of this pump-like mechanism the urine escaped at once in a constant dribble, as in distension overflow, ectopia vesicæ, or rarely in those suffering from a huge bladder stone. A lesser but commoner degree of bladder failure was shown when urine was expelled, not constantly but much more frequently than usual. Secretion occurred by day and night but normally more by day, partly because more fluid was drunk then and partly because activity caused a rise in blood pressure and so increased secretion. The average daily output was 50 oz. and the normal comfortable capacity about 8 to 10 oz.; the normal frequency was about four to six times by day for the male, three to four for females and one or no times by night, but capacity varied in different individuals and also in the same person. The difference between anatomical and physiological capacity was illustrated by the well-known tolerance of the female bladder, although male and female bladders were alike in size. Perhaps the greater tolerance of the female bladder was an adaptation to meet the pressure of pregnancy.

The patient's usual frequency had to be considered in assessing the value of the symptom of any increase; for instance nocturnal micturition of three or four times in a man of 50 or more was of little significance if a life-long habit, but if recent it was a symptom of enlarged prostate. Frequency was due to increased quantity of urine or decreased bladder capacity or to both causes. Polyuria might be due to diuretics, water being one of them, or to inability of the kidneys to secrete urine of normal concentration; to make up for the deficiency of solids dissolved in a given quantity of urine a greater amount was secreted in twenty-four hours. Further, since such diseased kidneys were unable to concentrate the urine when the intake of water fell, as at night, nocturnal as well as diurnal frequency resulted. This was characteristic of polycystic kidney and what used to be called chronic interstitial nephritis; it also occurred in diabetes mellitus, diabetes insipidus, and hysteria. In early unilateral renal disease ureteric specimens from both sides might show unilateral polyuria with marked differences in specific gravity. The passage of an increased quantity of urine with diminution of a renal swelling was a classical sign, but rarely seen, of intermittent hydronephrosis. The polyuria following Dietl's crisis was probably more often an irritative than a purely mechanical phenomenon.

Decrease in bladder capacity might be organic or functional. Organic causes were:—

(1) External pressure from a pelvic swelling, for example ovarian cyst, fibroid, or a pregnant uterus.

(2) Loss of distensibility as in muscular hypertrophy, fibrotic contraction from chronic cystitis or advanced

tuberculosis, infiltration by new growth, and where the sphincters were weak; this last type was relieved by lying down.

(3) *Partial* occupation of the bladder by enlarged prostate, stones, growths, ureterocele, or by a constant pool of residual urine behind an enlarged prostate, or with a cystocele, prolapsed uterus, or in nervous lesions.

Functional decrease in bladder capacity resulted from :

(1) Irritation by something ingested or contained in the urine (tea, coffee, alcohol, hyperacidity, oxalates, phosphates, bacilli, pus, blood).

(2) Inflammation of the bladder itself or of neighbouring glands, ducts, or viscera as in cystitis, trigonitis, prostatitis, vesiculitis, cervicitis, salpingitis, appendicitis.

(3) Reflex and other nervous influences (neurosis, hysteria, anxiety, fear, habit, renal and ureteric affections especially pyelitis, urethral caruncle, phimosis, and rectal parasites).

Trigonitis, which was better called trigonal hyperæmia, was common with gynæcological lesions and was characterised by frequency, worse by day, and terminal pain; the urine was generally clear although blood-cells were occasionally found. The diagnosis was confirmed by cystoscopy; gynæcological treatment was often successful but local treatment might be required. Hunner's elusive ulcer had eluded the speaker except for one possible case; Caulk had described it as a chronic inflammation of all coats of the bladder with active ulceration of the underlying membrane. Cystoscopy was said to reveal small abrasions with neighbouring œdema usually situated posterolaterally. The speaker considered that as pyuria was said to be absent in these cases Hunner's ulcer could not be a true ulcer.

As Kidd had emphasised, increased frequency was a sign par excellence of a diseased kidney rather than a diseased bladder; it should be more widely recognised that in investigating increased frequency the condition of the kidney should be examined and the kidney excluded as a cause before supposing that morbid conditions lower down the tract were sufficient to account fully for the symptoms. Failure to appreciate this led to many disappointments in treatment.

Insidious and progressively increasing frequency was usually the first symptom of renal tuberculosis and when pyuria coexisted called for complete investigation. Cystoscopy had shown that renal tuberculosis and also non-tuberculous pyelitis occurred without visible involvement of the bladder or with only œdema or pinkness round the ureteric orifice. Pyuria and increased frequency were often wrongly thought to be synonymous with cystitis. Pyelitis was often responsible and even if infection of the bladder were present it was often secondary to the kidney condition.

The diurnal or nocturnal nature of the frequency, the other symptoms, the age, temperature, and general examination had to be considered in investigation of frequency. The thorough clinical overhaul should include: rectal examination; examination of the urine chemically, physiologically, microscopically and bacteriologically, and by naked eye; the passage of a full-sized catheter to exclude any but a wide stricture and to discover and measure residual urine; and cystoscopy, except in acute cases where it was usually contra-indicated.

Treatment depended on the cause. Where there was no pathological condition of the bladder or urine washes with weak silver nitrate, gradual dilatation, or instillations of 1 or 2 per cent. silver nitrate into the urethra might be effective. Tincture of belladonna 5 to 10 minims, sandalwood oil 10 minims in a capsule, or tincture of hyoscyamus were among the useful drugs. If the urine were very acid diuretics and alkalis like Contrexéville, Vittel, and Evian should be tried; phosphaturia should be treated by sodium phosphate grs. 20, ammonium chloride, and mineral acids.

PAINLESS FREQUENCY

Dr. D. E. **Denny-Brown** spoke about painless frequency. Micturition, he said, was essentially an automatic function, the emptying of a hollow organ with a sphincter which was under the control of the vesical plexus and also of the spinal cord. Efficient micturition was only achieved when spinal cord control was added to the mechanism; then the urine was saved until the bladder was full enough and was passed about four or five times in the day. In neurology therefore efficient micturition, which was evidence of spinal cord control, was distinguished from inefficient, when for some reason the plexus was left to do its best.

Functional causes were by far the commonest in disturbances of efficient micturition. The cerebral cortex controlled micturition in the following way: as the bladder filled it reacted to a content of about 100 c.cm. by producing waves of contraction which gave no subjective sensation whatever. With increasing contents the contractions increased, and at a particular point the individual became aware that his bladder was slightly distended; he could then pass his water or suppress the micturition without discomfort. At last a stage was reached when the mechanism could no longer be suppressed. The part played by consciousness varied: if the attention was focused intently the mechanism would only be noticed at a late stage; if attention were vague and wandering the need for micturition presented itself early. In neurosis the patient commonly complained of lack of attention; in such patients eye symptoms occurred from failing to maintain their focus and in precisely the same way they picked up stimuli which would not normally reach the cerebrum; the vesical sensation might not be suppressed normally and then the patient had frequency.

Organic disturbance of efficient micturition was due to bilateral interference of the higher control. This was found in spastic states and was most noticeable in the milder ones, especially disseminated sclerosis. Syphilitic meningitis was another common cause of frequency, with subsequent incontinence; micturition symptoms occurred late in cases of compression of the spinal cord.

In inefficient micturition the bladder required to be fully distended to contract at all; small contractions occurred frequently. The patient complained of difficulty and retention.

Mr. A. E. **Porritt** described an experiment undertaken by students which had shown that the smaller members of their group could not hold their water so long as the bigger members. He thought perhaps surface area had some relation to excretion.

Mr. **Ainsworth Davis** considered that trigonitis was usually derived from cervicitis; treatment should first be directed to the cervix.—Mr. **Alastair MacGregor**, Dr. A. **Topping**, and Dr. S. T. **Falla** also took part in the discussion.

Guest Hospital, Dudley.—This hospital, which is shortly opening a new ward of some 50 or 60 beds, is adopting the hospitals contributory association scheme. The rates will be threepence for men, twopence for women, and, for youths below 18, a penny.

ROYAL ACADEMY OF MEDICINE IN IRELAND

SECTION OF OBSTETRICS

A MEETING of this section was held in the Royal College of Physicians on Nov. 20th. Dr. NINIAN FALKINER, in the absence of the president, took the chair. Dr. BETHEL SOLOMONS showed a

Granulosa-celled Tumour

of the ovary which he had removed at Dr. Steevens' Hospital.

The patient was aged 30 and consulted him because of amenorrhœa which she had had for eleven months. She also complained of sterility. The pelvis was normal. After a short course of luteinising and substitution therapy she menstruated twice, after which she again had amenorrhœa for about seven weeks when she returned complaining of hæmorrhage and acute pain in the right side. An adnexal swelling about the size of a turkey's egg was discovered, and, as a possible diagnosis was ectopic gestation, she was admitted to hospital; the tumour and the appendix were removed. On microscopic examination the growth proved to be a typical granulosa-cell tumour.

Dr. Solomons said that these tumours were very rare, and that this was the first reported to the Royal Academy of Medicine in Ireland. The first case had been reported in 1895 by von Kahlden. An interesting point about this case, he said, was that there was no sign of the tumour until the hormonic treatment began, and he asked whether the treatment produced the growth or stimulated a tumour already present. It would be interesting to note if menstrual function would become normal after the removal of the tumour.

The CHAIRMAN said he had thought that these growths were more often found in women about the menopause, and that one of the outstanding symptoms was severe hæmorrhage after a period of amenorrhœa. He had previously pointed out that the giving of Antuitrin S was open to some criticism because it was related to the carcinogenic substances, and he believed that in this case there was a relation between the giving of antuitrin S and the growth of the tumour.

Dr. GERALD DOCKERAY said that the sections seemed to him to be very typical of a fully matured granulosa-cell tumour. It was interesting to note that the trabeculæ were formed in situ and were not due to any invasion of the follicles. The cells were not specific for granulosa-cell tumours since they had been found in carcinoma in mice. He had no doubt that the growth was benign, for when these tumours became malignant they were usually bilateral. In a granulosa-cell tumour columnar epithelioma was never found, and even in cases supposed to be malignant there was always a doubt whether they really were granulosa-cell tumours or not. About 42 per cent. of these cases occurred at the climacteric, about 40 per cent. at puberty, and the rest were scattered over any period. In some of the younger patients these tumours had produced amenorrhœa. It was interesting to note that the amenorrhœa was not due to an excess of folliculin or to lack of it. Out of 16 cases reported by Dr. W. Schiller, 3 had shown evidence of virilism.

Dr. J. MCGRATH said he agreed that this was a granulosa-cell tumour, and he thought that it was definitely non-malignant. He had seen a similar tumour removed a little time ago, about twice the size of the one shown by Dr. Solomons. Microscopically it superficially resembled a rodent ulcer.—Dr. F. DOYLE, referring to the masculine distribution of hair in the patient, said that the tumours were supposed to have a hormonic cause that particularly affected the secondary sex characters.—Dr. F. S. BOURKE said that when he had first seen this tumour he thought it was a carcinoma of the ovary. Looking at the tumour with the naked eye he had not thought that such a smooth surface could be a granulosa-cell tumour. He did not believe that folliculin could produce a masculine distribution of hair.

Dr. SOLOMONS, in reply, said that whilst his patient was 30 years old, Schiller's figures showed that 42 per cent. occurred about the menopause. The question of malignancy was important, and since this growth was non-malignant no further investigation was necessary. The woman said she might have had a miscarriage 5 years before.

Dr. R. M. CORBET showed a specimen of

Krukenberg Tumour

secondary to carcinoma of the stomach.

The patient had originally been admitted to the Coombe Hospital with a diagnosis of hyperemesis gravidarum. A radiogram of the gastro-intestinal tract, however, showed a tumour at the pyloric end of the stomach. Labour was induced and a partial gastrectomy performed in the Mater Hospital. Eighteen months later the patient was readmitted with an abdominal tumour the size of a five months' pregnancy, and this proved to be a large Krukenberg tumour of the right ovary with a small tumour of the left ovary.

Dr. MCGRATH said that about 3 years ago he had seen a tumour similar to the one shown by Dr. Corbet. The ovaries were each about as big as a fist. A short time after operation the patient died, and post mortem a leather-bottle carcinoma of the stomach was found. He had also seen a case in which a dermoid cyst had been quite hidden, one ovary having a very large tumour, the other a very small one. Microscopy had shown stroma through which was a mass of fibrous tissue, and the cells had the typical signet-ring appearance.

The CHAIRMAN said he was interested to note that the patient had been admitted to hospital as a case of hyperemesis in which the vomiting was due to a pre-existing condition—a reminder that such conditions should not be overlooked in the diagnosis of hyperemesis gravidarum. He had seen one case in which the diagnosis had not been made during life, but at autopsy two tumours had been found in the pelvis smaller than the tumour in the present case. It was difficult to understand why an ovary should be the site of a malignant growth if the spread was lymphatic. He thought there must be some relationship between ovarian and intestinal growths.

Dr. DOCKERAY said he had no doubt that this was a Krukenberg tumour, although it was not quite the same as in a few microscopical slides that he had recently seen. The specimen was more like that illustrated in Dr. Teacher's book in which the primary carcinoma was in the breast. He had no doubt that in the past some granulosa-cell tumours had been reported as Krukenberg tumours that had been operated on and the patients recovered.—Dr. D. J. CANNON asked if the uterus had been removed in this case. The view had been expressed that these cases were undoubtedly due to lymphatic spread, and this had been demonstrated in Budapest where carcinoma had been found in the lymphatic nodules.

Dr. CORBET, in replying, said the chief arguments in favour of lymphatic spread were the finding of tumour cells actually in the lymphatics, and to his mind, the fact that the tumour seemed to grow from the inside of the ovary and not from the outside. The smooth surface was against a transperitoneal implantation. One case had been reported in which the patient was alive three years after the removal of the tumours. The uterus had not been removed in his case; it was quite small and hard below and behind the tumours. It was peculiar that one tumour was so much larger than the other, the larger being quite free, but the smaller was adherent to the wall of the pelvis.

Dr. T. M. **Healy** described his experience of Halban's operation for closure of the fimbriated end of the Fallopian tube in the treatment of primary sterility.

Dr. **Edward Solomons** read a communication on intravenous anæsthesia in obstetrics, and described a series of 46 successful cases in which he had used Penthethal as an anæsthetic in labour.

REVIEWS AND NOTICES OF BOOKS

Collected Papers

By the Staff of the Middlesex Hospital Medical School, 1935-1936.

The difficult problem of finding an inexpensive method of reproducing a collection of reprints appears to have been solved in a more satisfactory manner by the cancer and general research committee of the Middlesex Hospital than by most other bodies who attempt this task. All the articles, appearing as they have done in a large variety of journals, have been reprinted upon paper of standard size, and the binding is carried out by a special type of strong folder. The general appearance is therefore satisfactory and worthy of the contents. Among the fifty-two papers here reproduced there are many which have been recognised as of first-rate importance in the medical and scientific world. Drs. H. L. Marriott and A. Kekwick, with their contribution on continuous drip blood transfusion, have presented a new therapeutic procedure of the greatest value. The paper by Drs. L. E. H. Whitby and M. Hynes on supravital staining of leucocytes in normal and leukæmic blood is an important addition to hæmatology; the coloured plate illustrating this should be in request for text-books. Incidentally the clinical material upon which the work was based was rendered easily available by means of the facilities now provided in the Courtauld clinical research unit of the hospital. Another group of important papers by Prof. E. C. Dodds and co-workers deal with certain biochemical aspects of œstrogenic agents, again work of fundamental importance. These examples have been chosen as perhaps the most valuable, but there is evidence throughout of careful selection and every paper is worthy of its place.

Nouvelle pratique dermatologique

By Drs. J. Darier, R. Sabouraud, H. Gougerot, G. Milian, L. M. Pautrier, P. Ravaut, A. Sézary, and Clement Simon. Paris: Masson et Cie. 1936. Vols. VI., VII., and VIII. Fr.2000.

The sixth volume of this comprehensive symposium, of which previous volumes were reviewed a few months ago,[1] deals with the cutaneous atrophies and dystrophies, the tumours, and nævi. It provides ample information on such rare conditions as pellagra, the poikilodermata, epidermolysis bullosa, porokeratosis, and Darier's disease—often by the original exponents. L. Perin gives a very fair presentment of Darier's work on the disease known by his name—though in fact it was described before his time—illustrated by clinical photographs which do not quite depict the fully developed and highly characteristic state of a sufferer from this distressing disorder. Those who want to refer to this, or for that matter to any other disease, have to consult either the table of contents in Vol. I. or the index in Vol. VIII., a somewhat cumbersome procedure, which might well be made unnecessary in future editions. Over 300 pages in this volume are devoted to a consideration of the precancerous and malignant tumours. The former, which include xeroderma pigmentosum, seaman's skin, and senile keratosis—hardly "precancerous" in the same sense as Bowen's disease, Paget's disease, and certain types of verrucose and pigmented nævi—are the work of A. Civatte, whose histological studies and microphotographs must be regarded as among the most authoritative and complete of modern times. Their relations to X ray cancer and the effects of solar light and other carcinogenetic factors are discussed in the fullest detail. Section 8 of this volume by M. Favre, A. Josserand, and J. F. Martin is given to the epithelial tumours, including the epitheliomata, basocellular and squamous, and the sarcomata and pigmented carcinomato, or malignant melanomata. Among the illustrations in this section (facing p. 722) is one reproduced from an English atlas of dermatology.

An important section of Vol. VII. is allotted to R. Sabouraud for his treatise on seborrhœa, which includes an authoritative study of the pre- and post-seborrhœic states, acne vulgaris, acne (traumatique) due to medicinal causes—e.g., from tar or the halogens—and acne conglobata. Sabouraud is also entrusted with the chapters on the alopecias. The wealth of clinical detail and photographic illustration supplied represent the experience of over 30 years of intensive study at the St. Louis out-patient department and its now famous laboratory. Diseases of the sweat glands by Ch. Audry, so-called Fox-Fordyce disease by L. Chatellier, and diseases of the nails by G. Milian receive consideration, and there follows a series of dermatoses "not classified" which include erythema multiforme. The coloured illustrations from the living subject of this polymorphous disease are specially valuable. Lichen planus and its analogue, lichenification, are adequately dealt with by L. M. Pautrier of Strasbourg. The prevailing theories of causation and the relation of these to the occasional occurrence of lichen planus and lichenoid eruptions during antiluetic treatment by N.A.B. and bismuth injections, which G. Milian seeks to explain by his hypothesis of "biotropism," provide interesting if speculative reading. Psoriasis, that most elusive ætiologically of all the common dermatoses, has been allotted to J. Margarot; his account of it is followed by shorter chapters on the other scaly erythrodermias, such as pityriasis rubra pilaris, parapsoriasis in its various forms, and the generalised exfoliative dermatitis in which they sometimes end. Chapter XIV. deals with comparative dermatology, a new science, that seeks to establish comparisons and associations between human and animal skin diseases. We may eventually see interesting and unexpected developments in a branch of dermatology which has hitherto been regarded as only of veterinary interest. At any rate every dermatologist will appreciate the vivid illustrations of demodex, trichophytosis, and other parasitic infections, as they are seen in the animal kingdom.

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[1] The Lancet, 1936, i., 1414.

Vol. VIII., which completes the series, is the most indispensable as it contains the index—a laborious compilation of 88 pages. There are three sections given to a topographic résumé of the dermatoses discussed in greater detail in the preceding volumes, a therapeutic section which provides a most complete and modern dissertation on treatment, and a short thesis by A. Civatte on the present medico-legal position of the science in France. This volume if it could be purchased separately would be the most useful to the practitioner. There are 3 coloured plates and 175 halftone, mainly photographic, reproductions from clinical cases in the 868 pages of letterpress.

No one who studies even a small part of this veritable encyclopædia can fail to be impressed by the industry and care with which the work has been compiled and controlled. Although doubtless largely a labour of love—for the publishers can have spared no expense on the production—every contributor seems to have been fired by a desire to make this a worthy representative of French dermatology.

Industrial Environment and Health

Practical Methods of Investigation. International Labour Office, Geneva. 1936. Pp. 336. 7*s.* 6*d.*

THIS small volume is a companion publication to the huge encyclopædia of industrial hygiene entitled Occupation and Health (two volumes, pp. 2420, Geneva, 1930–32), which contains concise information as to materials used in industry, processes employed, sources of poisoning or infection, statistics, symptoms, diagnosis, prevention, and legislation. Several members of the Correspondence Committee on Industrial Hygiene, who had already taken an active part in preparing the encyclopædia, considered that it would be advisable to supplement this work by an account of the methods of analysis and research resorted to by industrial hygiene experts. They have therefore drawn up this report on the methods of investigation that medicine derives from other sciences for the purposes of checking or testing atmospheric pressure, temperature, humidity, ventilation, and lighting conditions, the quantity and nature of dusts and harmful gases, and other such things in working premises.

The chapters on measurement of atmospheric pressure and temperature are by Prof. G. Loriga, of Rome; those on humidity, cooling power, and ventilation by Mr. E. W. Murray and Mr. C. W. Price, H.M. engineering inspectors of factories; that on photometry by Prof. E. Bordoni, of Rome; that on measurement of noise by Dr. E. Lederer, of Munich; that on estimation of dusts by Mr. H. L. Green and Dr. E. L. Middleton, of London. All these chapters are profusely illustrated with photographs and diagrams indicating the instruments and methods used. Fully half the book is given up to industrial toxicology, and here the methods of estimation of lead, arsenic, benzene, carbon disulphide, carbon monoxide, &c., are described in detail, notably by Dr. Ch. Biot, of Brussels, and Mr. E. Kohn-Abrest, of Paris.

The International Labour Office is to be congratulated on the achievement of a difficult task. Misprints are few—mere incidentals in printing a book in English in Geneva.

The World of Science

By F. SHERWOOD TAYLOR, Ph.D., M.A., B.Sc. London: William Heinemann Ltd. 1936. Pp. 1063. 8*s.* 6*d.*

THIS is an amazing book, for it tells us in easy cheerful language about most of the things with which science is concerned—solids, liquids, gases, machines, heat, electricity, light, the earth, the heavens, physiology, heredity, evolution, and much else—and as far as one can judge it is all, within the the limits of space available, sound. The author tells us some of what is known and, which is at least as important, where science has no explanation of plain facts—e.g., what phosphorescence is or why the bakelite cups of current thermos flasks are more comfortable to drink from than the old aluminium or why the sun is hot. We heartily commend the book to all who are interested in science—many people are not—and, especially in THE LANCET, to those who did their science 30, 20, even 10 years ago, and have been away from it since, for they will learn without tears how many of the fundamentals of chemistry and physics have changed and advanced to a much more coherent and interesting tale than the one they used to hear. If only it were not so big and heavy, it would be an ideal book to dip into at odd times and places; we hope the next edition will be in two or three small volumes fit for the train or bed. But in any form it is first rate.

Halliburton's Essentials of Chemical Physiology

Thirteenth edition. By J. A. HEWITT, Ph.D., D.Sc., Senior Lecturer in Physiology, University of London, King's College; and W. ROBSON, Ph.D., D.Sc., Reader in Biochemistry at the College. London: Longmans, Green and Co., Ltd. 1936. Pp. 350. 9*s.*

W. D. Halliburton was a pioneer in chemical physiology in this country, and it would have been a pity to let his book die with him. It has historical as well as scientific interest. Dr. Hewitt and Dr. Robson have not only revived but, in our opinion, improved it in this edition, and are to be congratulated on the way they have set about their task of revision. Since its emergence into the curriculum as a separate subject, chemical physiology has been given widely different interpretations in different schools, but now there is little variation from one place to another in the exercises the medical student is called upon to perform. When those which are too long, and those which have already been done in the organic chemistry class are eliminated, a fairly constant remainder is left from which the teacher can take his choice. In accordance with this, the authors have deleted the section on organic chemistry and some advanced exercises, and abandoned the division into elementary and advanced sections. The book now consists of ten straightforward chapters, each preceded by a selection of practical exercises, which cover the work required for the second medical examination. It is up to date biochemically, and perspective in treatment has been preserved by one of the collaborators being a physiologist. The practical exercises take up a relatively small amount of space, and the student will find this book useful for its subject matter even if the teachers at his own school have prepared a practical course for him. The index is excellent, and the appendix of important data useful.

THE LANCET

LONDON: SATURDAY, DECEMBER 26, 1936

THE MEDICINE STAMP DUTY INQUIRY

THE Select Committee of the House of Commons has now heard evidence from the representatives of the organised parties concerned in the manufacture and sale of proprietary and advertised medicines. Witnesses have been subjected to examination, sometimes of a searching character, and if the members of the Committee are not now in possession of all the information necessary for a report to the Treasury it is certainly not their fault, since they went about their business with commendable thoroughness. Some of the witnesses were asked awkward questions and some of the answers clearly surprised the questioners. "You astonish me," said a member of the Committee when informed by a witness that there were "very few fraudulent remedies" as "the newspapers soon sorted them out." The terse comment made by another member of the Committee on a witness's answer was "Pure imagination, I should say." These incidents show that the human element was not absent from an inquiry which concerns a very human matter; and if, at times, questions and answers were a little out of bounds it may be the better in the long run. Has not England been called the "Paradise of Quacks" and were not our ancestors a nostrum-loving race from the King to the cottager? Thus the subject has its attractions and at one of the sittings, when there was a tendency to wander beyond the terms of reference, an hon. member brought the Committee back to reality with the reminder that they were there "not to find out whether a remedy was efficacious but only to find out about the duties of excise."

The object behind this inquiry "is to raise revenue by taxation," said a member of the Committee to a witness, "and that being so what ethical reason have you for suggesting that what you call 'ethical medicines' should be exempt from the tax when such a thing as tea pays a high tax?" Hence no encouragement is held out to the Proprietary Association of Great Britain that their proposal for a complete abolition of the duties will find favour with the Committee or the Chancellor of the Exchequer. The Proprietary Association includes in its membership practically all the owners of well-known proprietary medicines, and it may be assumed that most of the £2,500,000 spent annually on advertising medicines to the public is contributed by members of that Association. It was estimated by a witness that the value of the total sales of advertised medicines was £15,000,000 a year. Now the present rate of duty is threepence on a shilling article and a simple calculation on this basis shows that if none of these medicines escaped the tax the revenue would be £3½ million—whereas last year it was, in fact, £¾ million. Thus a means of raising the revenue by £2¾ million, without going further afield, jumps to the eye. It remains to be seen whether that would satisfy the Chancellor of the Exchequer in these times of rising expenses. There are rumours that he wants more, and whispers of a minimum of £5 million. From whence is the balance of £1½ million to come? Various proposals, some of them well considered, were put before the Committee. The Pharmaceutical Society, for example, drew attention to proprietary appliances such as aids to deafness, belts for rheumatic people, iodine lockets, and appliances for rupture; these, it was suggested, were suitable objects for taxation. Veterinary medicines which at present escape the duty were also suggested by the same body as worthy of the Committee's notice, as also were medicated herbs and toilet articles for which medical properties are claimed. The National Pharmaceutical Union, which represents the business interests of owners of chemists' shops, put forward a concrete suggestion that the following be subject to duty:—

> (1) all secret medicines; (2) all medicines sold under a proprietary name; (3) all medicines sold under a trade name, trade mark or brand; (4) all medicines in the formula of which a proprietary right is claimed; and (5) all medicines sold with recommendations for human ailments.

The Committee was clearly interested in the examination of this proposal and it is probable that if it were adopted, with the additional groups mentioned by the Pharmaceutical Society, the revenue would not fall far short of the £5 million which the Chancellor would find useful.

It is a remarkable fact that at the present time there are approximately 150,000 holders of licences to sell "patent medicines," and that only one-tenth of that vast number are registered chemists and druggists. Further, although the number of licensed vendors rose from 89,980 in 1929 to 147,170 in 1935, the revenue from medicine stamp duties has dropped by nearly half since 1929. As explained a few weeks ago,[1] the serious fall in the yield was due to the lawful evasion of the duty by manufacturers who took advantage of a judicial ruling that medicine the composition of which was declared was not subject to duty if sold by registered chemists. Logical reasons why the registered chemists should retain a privilege which the legislature of a hundred and fifty years ago intended them to have were placed before the Committee, but there is at least some doubt whether the exemption will be retained. The question is wholly one of revenue: the rights of a particular class of vendors and the morality of the nostrum business are matters which the Committee may disregard as not being within the scope of their inquiry. But it is impossible to overlook the fact that certain statements made by witnesses reflected gravely on practices employed by a section of the nostrum industry; apart from the question of revenue, the proceedings elicited admissions which suggest the need for a full and fresh inquiry into the whole affair.

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[1] THE LANCET, Nov. 28th, 1936.

MANDELIC ACID

The value of mandelic acid in the treatment of urinary infections is widely recognised in this country, and it is interesting to have observations from the American side. The *Journal of the American Medical Association* for Nov. 28th contains four papers devoted to mandelic acid and ammonium mandelate, and while the results recorded are as satisfactory as those obtained in England, much the same difficulties and disadvantages have been encountered. The clinical value of the new antiseptic is confirmed by two series of cases reported by Carroll, Lewis, and Kappel[1] and by Cook and Buchtel.[2] The formers' cure-rate of 81 per cent. in cases of *B. coli* infection compares favourably with recent reports here and with the results obtained with the ketogenic diet. On the other hand the difficulty of sterilising urine infected with *Bacillus proteus* has often been noticed, and this difficulty is the more striking since in test-tube experiments Helmholz and Osterberg[3] found this organism the most sensitive of those examined. The clinical failure probably depends partly on the fermentative action of the bacillus and also partly on the type of case in which it is most commonly found.

Helmholz and Osterberg have confirmed the original laboratory work that lay behind Rosenheim's introduction of the new drug for clinical use. They show that it is an active bactericidal agent in acid urine and that while at a pH of 5·0, 0·25 per cent. of mandelic acid was bactericidal for most organisms, at a pH of 5·7 four times that concentration (1 per cent.) was needed to produce the same effect. They also found that, using the routine treatment, a concentration of ½–1 per cent. of mandelic acid was readily obtained in the urine. Almost all the ingested mandelic acid appeared in the urine within twenty-four hours, the excretion being maximal about two hours after its administration. This emphasises, of course, the need for repeated dosage of the drug if a satisfactory bactericidal effect is to be maintained. Investigating the renal function in animals after the intravenous injection of sodium mandelate, they found a definite diminution in the urea-clearance ability of the kidneys, but concluded that any injury that might be produced was only temporary. Cook and Buchtel, who noted a similar effect in man, emphasise the need for caution in using the mandelic acid in patients with a reduced renal function and especially in the aged. Dolan[4] strikes a note of warning when he says that not enough is known about the new drug to warrant the use of the unrestricted title of "urinary antiseptic." He used it regardless of the presence of pre-existing pathological conditions and reported various complications, and while his cases bear testimony to its great bactericidal power, even when there is urinary stasis, they emphasise what was said by almost every speaker at last month's meeting at the Royal Society of Medicine—namely, that the underlying lesion must always be taken into consideration.

Among the complications Dolan records hæmaturia was prominent. This has not been widely observed in this country and its occurrence in a case of senile enlargement of the prostate and one of suspected renal tuberculosis may well have been due to the altered acidity of the urine, quite apart from the mandelic acid. Dolan suggests that the drug should not be widely distributed without attention being called to the possible complications; and all workers, both in England and in the United States, insist that the treatment must be adequately controlled, that it should not be used where renal function is impaired, and that wherever the infection does not respond a complete urological examination should be made.

THE DISTRICT NURSE

The nursing of the sick poor in their homes is a work that appeals alike to heart and head. No great flight of imagination is needed to picture the distress caused when illness descends upon a family living in cramped and crowded quarters, and the impossibility of such a family procuring suitable care without some service of the kind provided by the district nurse. It is also easy to appreciate the importance of a system that is not only curative but also preventive and educational. Attention from a district nurse enables many a patient to be treated at home who must otherwise have been sent to hospital, and the value of the information imparted in connexion with cleanliness, food, infant management, and the routine of life is incalculable. Yet this useful service is a comparatively modern innovation. The first visiting nurse among the poor was appointed in 1859 by William Rathbone of Liverpool, at his own expense, and the title "district nursing" originated in the plan adopted there in 1862, when the town was divided into districts and a nurse was supplied for each. Other societies for the same purpose were soon established in different parts of the country, and in 1887 Queen Victoria's decision to devote £70,000 of the Women's Jubilee Offering to the promotion of district nursing raised the whole service from the sphere of individual effort to that of national institution. Two years later Queen Victoria's Jubilee Institute for Nurses was incorporated by royal charter, and from that time the work has always been under royal patronage. The title was altered to the Queen's Institute of District Nursing under a revised charter granted in 1928. Little by little voluntary associations for the promotion of district nursing were formed, at first in the towns but quickly spreading to rural areas, so that now in 51 counties and 135 cities and towns Queen's nurses work under county and district nursing associations affiliated to the Institute. This affiliation ensures the maintenance of a definite standard of training and work through a system of inspection.

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[1] Carroll, G., Lewis, B., and Kappel, L.: Jour. Amer. Med. Assoc., Nov. 28th, 1936, p. 1796.

[2] Cook, E. N., and Buchtel, H. A.: Ibid., p. 1799.

[3] Helmholz, H. F., and Osterberg, A. E.: Ibid., p. 1794.

[4] Dolan, L. P.: Ibid., p. 1800.

In a sense the Queen's nurse may be regarded as the cream of her profession. Before enrolment she must have had not less than three years' training in an approved hospital and be on the State register as a general nurse. In addition she must have taken an approved training in district nursing for not less than six months, followed by an examination. If she is going to practise midwifery she must have taken the further course which enables her to be certified under the Midwives Act. This special training is provided by the Institute, at a cost to itself of about £30 for district and £10 for midwifery training for each candidate. During 1934 a survey of district nursing throughout England and Wales showed that 95 per cent. of the population was provided with a district nursing service, and a revision setting out the position at the end of 1935 reveals an increase of 2 per cent. This however does not mean that this large proportion is satisfactorily provided for, since in some cases, especially in populous towns and cities, the staffs are far from adequate to meet the ever-increasing demand for domiciliary nursing. Next year the Queen's Institute will celebrate its jubilee, and on Dec. 3rd a luncheon meeting was held in London to discuss the appeal which it is proposed to make on behalf of the Institute and the county associations of district nursing. The Earl of Athlone, in a speech read in his absence by Sir William Hale-White, pointed out that, widely known and appreciated as district nursing is, it is still in need of further publicity: "There is nothing spectacular," he said, "about the work. The hospital stands out like a city of refuge and, so to speak, advertises itself all the time, while our work goes quietly on from door to door, from one sick room to another, doing good all the time, but lacking advertisement. Everybody knows that there is a hospital; but many are ignorant of our existence until some day the doctor says, 'I think you'd better have the district nurse in.'" The magnitude of the service is suggested by the fact that during one year more than 14½ million visits were paid by Queen's nurses. This, as Miss Mercy Wilmshurst, general superintendent of the Institute, said on the same occasion, "represents about 50,000 visits a day, year in year out, on fine days and wet, in summer and winter, on week-days and Sundays." And she added that the Institute desires to celebrate its jubilee by extending the organisation "so that there shall be no town or hamlet, farmstead or outlying cottage to which a nurse cannot be summoned when her services are needed." To recruit and train the 1480 additional nurses required will cost something over £50,000, and when trained they must be supported by the local associations under whom they work. In the last year for which figures are available contributions from patients and from provident funds amounted to the substantial sum of £416,110 out of the total income of nursing associations throughout the country of £1,059,667. Local authorities can and frequently do make grants to nursing associations, and it is likely that the Midwives Act of 1936 will further help the midwifery work undertaken by the Institute by increasing the grants made to voluntary organisations and improving the status of the midwifery profession.

It is not surprising that an institution at once so homely and so efficient should have achieved such widespread popularity. The general practitioner welcomes the assistance of the district nurse in carrying out home treatment which would often be impossible without her. The sick poor themselves value this help even more, and when once the nurse has won the confidence of a household, an almost unlimited field of opportunity is open to her.

BLAND-SUTTON

The life of John Bland-Sutton is a record of fulfilment and achievement which come to few men. Like many a genius before him he was weakly in body during childhood and youth, but like them too he had enormous reserves of energy and an immense capacity for work which did not throw too great a strain upon his physical resources. He inherited a love of animals and nature study, and was nurtured in an environment which fostered this innate bent. The secret of his life lay in his insatiable curiosity about biological phenomena, his untiring energy in pursuing these studies, and an incalculable insight into the meaning of new scientific facts and the developments which they foretold. It was indeed his zoological dissections and observations that made him a pioneer in the surgery of the female genital organs and of the gall-bladder.

He lived in a period of great change both in the practice and ideas of surgery, and his greatness was shown in his unerring assessment of what was intrinsically true and in his immediate adaptational response to new ideas and methods. He was brought up in the times of the Listerian controversy, and actually saw the introduction of the clinical thermometer. Trained for many years as an anatomist, and entering surgery as was customary in those days through the portals of the dissecting-room, in which he first built up a great reputation, it was characteristic of the man that he perceived that the future road to surgery lay through a study of biology in its widest sense. It was this foresight which led him to make a magnificent gift of an institute of research to the Middlesex Hospital. In his operating he was bold in a way which is strange to modern surgeons. He had watched in his early days the work of surgeons who cultivated the speed imposed by the absence of anæsthesia, yet he was skilful and sure, and developed a refinement foreign to them. Not that he ever became elaborate in his technique: he relentlessly eliminated all but the very essentials from his methods. Simplicity of thought and action made of him an operator who could work wonders with the fewest of tools and materials. With his directness of vision and uncanny sense of values he scorned the affectations he perceived in the technique of lesser often much admired surgeons, and so he remained to the end of his active career a supreme operator. Like other men of great ability he had an almost inexhaustible desire for knowledge which, as usual, was particularly noticeable in early life. Physics, chemistry, astronomy, mathematics, the dead languages were all subjects of intense interest and study to him. He soon found he had no natural aptitude for mathematics, and wisely decided that this would be an enormous handicap in the study of physics or astronomy. True to his instincts he made the momentous decision to become a surgeon. So the Middlesex Hospital found one of the most famous of its staff, and the Royal College of Surgeons of England one of the most distinguished of its presidents.

Born in an age when the Origin of Species was looked at askance, and when Bradlaugh was prosecuted for publicly advancing views on population which are now accepted without comment, **Bland-Sutton** remained faithful to the views of his generation in a manner curiously unlike his adaptability in things surgical. When asked to comment on a book by the astronomer Flammarion on Death and its Mystery in 1922 he wrote :—

> "In the dim future do not seek to peep,
> Trying to fathor [illegible]
> Youth often lau[illegible] eep,
> Wise men know [illegible]"

and reaffirmed this belief in the story of his life published in 1932. But those who lived and worked with him may prefer to find the interpretation of **Bland-Sutton**'s life in what he did and what he was.

ANNOTATIONS

MEDICINE AND THE SCHOOL-CHILD

Sir Arthur MacNalty, as chief medical officer of the Board of Education, has submitted his annual report[1] for the year 1935. This is as usual a monograph on the school medical service and what it is doing, and although, in accordance with service etiquette, no names are mentioned for the authorship of the various sections of the report, it is easy for the initiated to find therein welcome evidence of the hand of Dr. J. Alison Glover and the officers associated with him, Dr. Muriel Bywaters, Dr. A. H. Gale, Dr. J. E. A. Underwood, Dr. Robert Weaver, Dr. Ralph Williams, and Dr. Lilian Wilson. Each of the eight chapters contains the story of the present position of a section of child health, and there is a hint of the "ungarnered wealth of medical, educational and sociological information" which lies in the field of this medical service, for a list is given of 52 special reports selected from the returns of 32 local education authorities. Although, as is natural, 11 of these deal with the subject of nutrition, the others cover as wide a field as does many a system of medicine, the only limitation being to the school age-group. Sir Arthur introduces the report with a note on the growth of open-air activities, which suggests to him a recapture of the Greek lesson of life, and he quotes with approval the remark of Dr. L. P. Jacks that sane physical education of school-children is leading to a most promising spiritual revival. Sir Arthur finds it desirable to repeat a warning, which has already appeared in previous reports, that whatever form physical training takes, it should so far as is practicable be proportioned to the age, sex, habits, circumstances, and state of health of the individual child. The school medical officer's advice will often be sought on the suitability of a particular form of physical training. In the conclusion to the report he asks, what is the country getting in return for its expenditure? The school-child is demonstrably taller and heavier than he was, but is he becoming healthier and fitter? There is the striking diminution in tuberculosis during the last decade, but it has been remarked that the defects found in children on leaving school are as many and as serious as those when they enter; ergo, school medical work must be of scant value. The reply of course is that the period of growth is a time when certain diseases and defects are specially prone to develop; and simply to keep up with it, like the traveller who strains every effort to keep up with a moving objective, is already an achievement. But Sir Arthur has made a neat little calculation which suggests that the school medical service is really doing much more than this. The difficulty is that the complete data are not available, for only in a few areas are routine tests for visual acuity carried out at the time of entrance to school life, and hence the recorded incidence of such defect in the entrants' age-group is much less than the real incidence. He therefore eliminates visual defects altogether from the data for the three routine age-groups, and then calculates the percentages requiring treatment at the three periods of school life, picking out the children who entered school in 1926, 27, and 28.

Percentages requiring treatment, excluding dental defect, uncleanliness, and visual defects

		Per cent.			Per cent.			Per cent.
Entrants	1926	19	Entrants	1927	19	Entrants	1928	20
Intermediates	1929	13	Intermediates	1930	14	Intermediates	1931	13
Leavers	1933	9	Leavers	1934	9	Leavers	1935	9

These are very striking figures and although admittedly they are not mathematically accurate they are a clear indication of the value of the school medical service as administered to-day. As Sir Arthur remarks, if much has been achieved in the past, still much more remains to be done, for the younger generation is emerging into a more exacting and complex world than its parents faced in their younger days.

LONDON HOSPITALS

The year which is just closing has been a good one for the voluntary hospitals of London. That is a fair deduction from the meeting of King Edward's Hospital Fund which took place at St. James's Palace on Dec. 14th when H.M. King George VI would have taken the chair if he had still been president of the fund, as he was until his accession to the throne. As usual for the last four years a sum of £300,000 was allocated in grants to the 146 hospitals which applied for them, the Battersea General Hospital being included in the list for the first time. Five of the larger grants exceeded £10,000 apiece, the money being given mainly to cover running expenses, although a substantial proportion is allocated to capital schemes for promoting efficient work such as building or improving nurses' homes, out-patient departments, and operating theatres, rather than a mere addition to the number of beds. A further large sum has also been allocated to the 56 convalescent homes which take London patients without being attached to any particular hospital; these homes contain some 3500 beds and sheltered last year nearly 31,000 convalescents. Over and above these benefactions the Fund has during the year provided £2000 for district nursing, and a special gift of £10,000 to the radium fund will enable important additions to be made to the hospital radium service. The Fund keeps up interest in current matters of hospital policy. In his message the King expressed pleasure at its success in inducing hospitals to combine their several flag days, and at the continued thought being given to out-patient waiting. A committee of the Fund is now considering with the hospitals the quickest way of doing efficiently all the things that have to be done after patients arrive at hospital and before they see the doctor. The visitors who keep the Fund informed of what goes on from day to day in the hospitals have reported that there are still thirteen hospitals which wake their patients before 6 o'clock in the morning. It is true that the proportion of patients thus disturbed is only 9 per cent. of the total hospital population in London, but it must still stand for a large amount of distress and discomfort. It is unfortunately not quite certain that the same grant can be given this time next year; the hon. treasurer of the Fund had to report that the estimated income for next year was down by about £20,000, the decrease being due almost entirely to a shortage in legacies. There is yet a little time before the end of the year and although no one wants hospital well-wishers to pass away at Christmas-time, yet if they must it may be hoped that they will be both rich and generous. All the cheques for this year's grants were posted on Friday, Dec. 18th.

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[1] The Health of the School-child. H.M. Stationery Office. Pp. 159. 2s. 6d.

DOMESTIC HEATING BY GAS

One of the greatest labour-saving devices in the modern home is the fire which makes no dirt, and which can be put on and off at will, by pressing a switch or turning a tap. It is inevitable that gas and electric fires, starting as substitutes for the coal fire, should develop along independent lines and give rise to new problems. At the request of the governor of the Gas Light and Coke Company, the Royal College of Physicians of London appointed a committee to examine domestic heating by gas from the point of view of health and comfort, with particular reference to "the construction of rooms without flues or air bricks." The report of this committee has just been published[1] and makes interesting reading. It begins by stating the optimal conditions for comfort—namely, that loss of heat by the body should proceed at a certain rate, and by radiation, convection, and evaporation in certain proportions. This leads to a general survey of the ventilation and heating requirements of rooms, and the relative merit, in different circumstances, of fires which throw out a lot of radiant heat and those which merely heat the air by convection. The plan of the report is then to say that, under average conditions of ventilation, the flueless room requires so many cubic feet of gas per hour to heat it, and to discuss the possible harmful effects of burning such a quantity of gas. An astonishing difficulty is recorded, which, though it did not prevent the carrying out of this plan by the committee, introduces an element of surmise into their findings: ". . . the committee is of opinion that the degree of air change which takes place in rooms under ordinary conditions of occupation has never been adequately investigated." . . . There is "no general agreement as to what constitutes sufficient ventilation in a room unprovided with a flue, and dependent entirely on the opening of windows and doors. . . ."

The bulk of the report consists of a survey of the effects of a gas fire, using 1 cubic foot of gas per hour per 100 cubic feet of room space, in a flueless room where the air is changed not less than once per hour. In such a room, the heating would be adequate, and the ventilation, though probably just sufficient, rather on the low side. It is thought, however, that a less degree of ventilation than this would be unlikely, even in a flueless room, so that from the point of view of products of combustion, worse conditions would not be encountered. Tables are given showing the maximum gas rates permissible in a room of standard size with reference to the ventilation-rate, and the effect of the sulphur content of the gas upon these maxima. Provided that the given rates of combustion are not exceeded, and they are adequate for heating purposes, no danger is to be anticipated from fumes. The committee dispels a few popular illusions about carbon dioxide, and devotes a good deal of space to carbon monoxide. Other products of combustion are considered, but those first likely to rise above the threshold of comfort or safety are the oxides of sulphur. Fortunately, these are smelt long before they become toxic, so that they are in every way a desirable criterion for the maximum permissible rate of gas usage. It is less fortunate that the percentage of sulphur in gas varies with the process of manufacture. The report itself should be consulted for reservations, often important, but in general it may be said that the heating of even flueless rooms by gas is compatible with comfort and health. In view, however, of the lack of knowledge about the ventilation of such rooms, the committee strongly deprecates their construction, and advises the provision of at least an air brick. It is useful to have this independent verdict on a matter of everyday importance.

WISE ANDREW BOORDE

Andrew Boorde was born in Sussex in the last years of the fifteenth century and lived till the middle of the sixteenth. His two small books are among the earliest written in English on medicine after the Renaissance, and are especially of interest because they represent the revolt from mere authority and the rise of a spirit of inquiry and recourse to actual observation, which were to come to fruition in the later years of the century. The Garswood Press, whose first publication[1] this is, and its editor, have chosen from the two books those passages which may "best reveal the author, the usages of his age and more particularly the organisation of a Tudor house hold." The original volumes were published, probably in 1542, for in that year Boorde dedicated the Dyetary to the Duke of Norfolk; and there were later editions in 1562 and 1576, long after Boorde's death which took place probably in 1549. They have been reprinted in the nineteenth century by the Early

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[1] Domestic Heating by Gas considered from the point of view of Health and Comfort. Report of an Advisory Committee of the Royal College of Physicians of London. London: Harrison and Sons, Ltd. 1936. Pp. 31. Price 1*s.* (The members of the committee were Prof. W. W. Jameson, M.D., Sir Joseph Barcroft, F.R.S., Sir Arthur Hall, M.D., Dr. G. P. Crowden, and Dr. Reginald Hilton.)

[1] The Wisdom of Andrew Boorde. Edited by H. M. Poole. Illustrated by A. E. Christopherson. Leicester: Garswood Press. 1936. Pp. 63. 7*s.* 6*d.*

English Text Society, principally for their philological interest.

Boorde's age was the period of the travelling scholar, and a considerable portion of his life was passed in foreign travel. He had been brought up as a Carthusian monk, but when he was nearing his thirtieth year he obtained a dispensation from his monastic vows, and set out to see the world. This first journey occupied about two years, at the end of which he returned to England and practised the art of medicine, having many notable patients, among them the great Duke of Norfolk, by whose favour he was introduced to the Court, but was not apparently among the King's physicians. He was however restless, and, fired by a zeal to "se and to know the trewth of many thynges" and to "have a trewe cognyscyon of the practis of Physicke," he visited all the best known universities and schools "within the precinct of Chrystendome" in a second tour of Europe. In 1534 he was back in London, and was shortly afterwards employed by Thomas Cromwell to visit the principal Courts of Europe and report on political matters. After this journey he visited Scotland, still in communication with Cromwell. Then came the dissolution of the monasteries and Boorde departed from England on a journey which took him to France, Germany, Italy, Rhodes, and thence to Joppa and Jerusalem; he returned by Naples and Rome and then passed the Alps to settle for a considerable period in Montpellier, where he appears to have written his two books. On his return to England he is said to have settled in Winchester, and for an alleged offence against morals was in prison. In the Fleet prison he made his will in 1549 and died almost immediately afterwards in his sixtieth year.

He was certainly a learned man and a good scholar, and at that time scholarship and learning entitled a man to style himself a physician, for medicine was almost entirely the outcome of a study of Galen's writings. However, in Montpellier and elsewhere, men were beginning to break away from mere authority and Boorde was not in the least, so far as we can judge, prepared to accept things on hearsay; he wished "to se and to know the trewth of many thynges." And so, though he quotes authority often, he is quite ready to contradict it with the facts which he has himself observed, and his remarks on diet, the rules for retaining health, and the effects of climate are full of good sense derived from his own experience. His English style, as exhibited in these excerpts, is always lucid, and occasionally achieves elegance and terseness. Half a century later that monarch among essayists scarcely bettered Boorde's directions for building a house. It is almost the tongue of the great Lord Chancellor: "For the commodious building of a place doth not only satisfy *the mind of the inhabitor*, but also it doth comfort and rejoiceth a man's heart to see it, specially the pulcruse prospect. For my conceit is such, that I had rather not to build a mansion or a house, than to build one without a good prospect in it, to it, and from it."

This charming brochure is something of a curiosity. In the first place it is not a complete edition of the text of Andrew Boorde's Breyvary of Health, nor of his Dyetary of Health, but contains one excerpt from the Breyvary and a score or more from the Dyetary. It is to a certain extent modernised, especially in the spelling, in which Andrew, like most of his contemporaries, was content to write down the form which for the moment appealed to his eye; and it is published in a limited edition of five hundred copies. It is obviously not intended for scholars; it is difficult to believe that it will appeal to the general, or even to the medical, public; so that it must be supposed that it is addressed to his fellow virtuosos by a virtuoso. At any rate its format, its illustrations, its type, its essays on mediæval medicine and the school of Montpellier are all delightful.

POISONS DISPENSED BY PRACTITIONERS

We would remind practitioners who supply medicines to their patients that on Friday next they should be careful to comply with the requirements of the rules in regard to the labelling of poisons which then come into force. It will be necessary for a dispensing practitioner, when supplying poison as a medicine, to take steps to ensure that the container is distinctly labelled with his name and address. In the case of an embrocation, liniment, lotion, liquid antiseptic, or other liquid medicine for external application the container must be labelled with the name of the article (e.g., "The Lotion") and the words "For external use only." It is also incumbent on the dispensing practitioner, when he supplies his patient with any substance in the First Schedule, to enter in a book which he regularly uses for that purpose the following particulars: (*a*) the date on which he supplied the medicine; (*b*) the ingredients of the medicine supplied; and (*c*) the name of the patient. No such entry is required, however, when the medicine is prescribed on an insurance form or on one issued by the local authority's health service. Nor is a practitioner required to keep a record of a medicine administered by him personally to a patient or left with the patient when attending him.

DIAGNOSTIC VALUE OF HORMONE ASSAYS IN PREGNANCY

The excretion of gonadotropic substances in the urine, recognised by a qualitative test on mice, is the basis of the Aschheim-Zondek reaction for detection of early pregnancy. Quantitative tests have indicated the approximate course of their excretion during pregnancy, and some attention has been given to the differences between individual cases. In our present issue Dr. Browne and Dr. Venning describe how they have followed in detail the variation in urinary gonadotropic substances throughout pregnancy in five cases. This laborious work has led to several important conclusions. In the first place, these cases did not follow the generally accepted normal curve of amounts excreted at different stages of pregnancy. Further the results demonstrate, in confirmation of Heim, the great individual variations that may occur, and suggest that big variations are highly significant of the state of the pregnancy.

It may be argued that, however laborious the work, an investigation of this kind must be extended to very many more cases before generally valid conclusions can be drawn. But this extension must depend on advances in technique; for the stage is not yet reached at which cases examined in different laboratories can be directly compared and the data accumulated to form the basis of adequate generalisations. Several methods of extraction of the gonadotropic fraction from urine are known, but there is no general agreement about the best. The means of assay are in a still greater state of confusion: with different methods, different stocks of animals, and without any common standard of comparison, results from different laboratories are only broadly comparable. Two workers might agree that gonadotropic material reaches a maximum concentration at a certain period of gestation, but it is highly unlikely that they would agree on a numerical value for that concentration. That is why intensive investigation is necessary with the object of finding and establishing optimum methods of extraction and assay and of contriving some common unit of biological activity preferably in the form of a standard preparation. These general considerations must certainly not be taken as belittling the pioneering work of Browne and Venning, but rather as a plea for conditions that will make more of such work possible.

Dr. Browne and Dr. Venning go on to propose an interesting theory to account for the course of excretion of gonadotropic material, according to which the care and maintenance of pregnancy is the task of the ovary until the placenta, with its own gonadotropic hormone, has worked itself up into such a state of activity that it is producing enough progestin and œstrin to take over the burden. The maximum of urinary gonadotropic excretion is then at the period when the autostimulation of the placenta is at a maximum, but its pregnancy-maintaining function has not yet come into full production. After this, either the stimulation falls off, or the stimulated cells within the placenta absorb increasing quantities of the hormones. The application of such a theory to the interpretation of abnormalities of excretion may prove very useful in practice. It is sufficient to refer here to the case described in which abnormally low excretion in the early days of pregnancy was associated with an ectopic gestation with little living chorion, and the suggestion that, although the qualitative test may be positive, low values, obtained by quantitative estimation, generally imply that the products of conception are dead or dying.

ASTHMA RESEARCH

DURING the year ending last October the work of the Asthma Research Council formed in 1927 has continued in various centres, and the latest report can now be obtained free from the secretary of the Council, c/o King's College, London, W.C.2. At Guy's Hospital, 610 new patients have attended the research clinic during the year and a conclusion reached after close study of a small group is that asthmatics are substantially improved by general medical measures, and tend to improve to some extent under treatment of any sort. Protein desensitisation and the use of vaccines are the specific methods at present being investigated at this clinic, and though analysis of results obtained is still incomplete they seem so far to be disappointing. Monilia infections, reported to be common in asthmatics in the Channel Islands, have been found to be rare in London asthmatics among whom no evidence of specific cutaneous sensitivity to monilia has been demonstrated. As we have already recorded, the psychological side of asthma is also receiving attention at Guy's from Dr. C. H. Rogerson working with children and Dr. E. B. Strauss with adults. The year's work at this clinic confirms the impression that no existing method of treatment comes anywhere near to cure, and future inquiry is to take the form rather of studying individual cases than of large-scale investigation of methods of treatment still on trial. With this in view, a drastic reduction in the number of patients attending the clinic is imperative. At St. Mary's Hospital antibacterial, psychological, and desensitising methods have all been employed. Workers at this clinic maintain that when specific protein sensitisation cannot be demonstrated, focal sepsis must be looked for and eradicated. From the beginning of March to the end of July a special hay-fever clinic is held at St. Mary's. At King's College Hospital the value of remedial breathing exercises in asthma is being further examined and the importance of increasing the reserve air rather than the vital capacity of the chest is emphasised. At the Leeds General Infirmary large doses of potassium chloride have been found to benefit a few patients, mostly young ones, and a quantitative method of desensitisation has been tried with good results. Thus, if a patient has given a triple positive reaction to feathers and a double positive reaction to horse dust, a mixed protein vaccine containing three parts of a dilution of feathers and two parts of a solution of dust is used. Various non-clinical investigations have also been made. At King's College attention has been focused on the mechanism of the action of adrenaline on the body. Sir Leonard Hill at the St. John Clinic has found that many asthmatics are made uncomfortable by dull red and dark sources of heat, and pleads for adequate ventilation to prevent this, and also to sweep away "droplet" infection. Lastly, at the Charterhouse clinic, Dr. Gilbert Scott has been treating cases of asthma and other diseases with wide-field radiation over the whole abdomen and back, but excluding the thorax, using small doses of X rays. The report shows that, if so far the results of this asthma research have not been as fruitful as might be wished, there has been no lack of effort among the workers.

TEA

THE effect of tea on health has been a subject for controversy ever since its use became at all popular in this country, which was soon after the Restoration, for we find Samuel Pepys noting in his diary that he tried the new Chinese drink tea. In 1772 John Coakley Lettsom prefaced his M.D. thesis on the properties of tea with the remark "The accounts which have been given of the virtues and efficacy of tea are in general so contradictory and void of true medical observation, that it seemed no improper subject for a candid discussion." Lettsom came to the conclusion that "Tea, if not drank too hot, nor in too great quantities, is perhaps preferable to any other vegetable infusion we know. And if we take into consideration likewise its known enlivening energy, it will appear that our attachment to tea is not merely from its being costly or fashionable, but from its superiority in taste and effects to most other vegetables." His impression was amply confirmed by the distinguished chemists who not long ago discussed tea and coffee from various aspects.[1] We have received from the Empire Tea Market Expansion Board an attractive booklet addressed to the medical profession entitled "A New Essay Upon Tea" and dedicated to Dr. Lettsom, in which the history of tea is briefly set out and rules are given for choosing and serving what is best. The point is made that the tannin of tea, which its opponents allege tans the stomach of the tea drinker, is not the tannin of the pharmacopœia. Moreover tea contains less of it than sundry other beverages. The Board's thesis is documented by an investigation of the action of the various components of teas on the stomach juices in vitro and of the effects on a group of healthy young men and women. It was found that generally hot water could be drunk without causing discomfort, but when caffeine alone or B.P. tannin alone was added discomfort and sickness ensued. When however both substances were added no discomfort followed. Tea drunk without milk or sugar only caused discomfort when the quality was poor, but the addition of milk and sugar prevented any feeling of discomfort, even if the tea had been infused for ten minutes. The laboratory experiments suggested that the effect on salivary digestion was extremely small when the alkalinity of the salivary juice was accurately copied. Milk with its amphoteric proteins was more efficient than sodium bicarbonate in producing the desired alkalinity, since the proteins formed insoluble compounds with the tannin as the point of acid reaction was approached. Tea-tannin was found to have a definite effect in reducing peptic digestion, proportional to the amount of tannin present, and dependent on the acidity and buffering substances. The effect occurred only within the range of acidity of the normal fasting stomach and was countered by the addition of milk to the tea. When the stomach is stimulated the acidity is raised and any deleterious effects of the tannin become negligible. Pancreatic digestion was affected only if the whole solution became acid. It appears from this investigation that tea taken in the ordinary English fashion with milk does not hinder digestion in healthy young people. If tea is taken without milk it should be a high-class tea. If tea is allowed to draw for long the dose of milk added should be proportionally large. The Expansion Board has certainly made out a good case for Pepys's new Chinese drink, though no doubt candid discussion on its virtues and efficacy may go on for another century or two.

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[1] THE LANCET, 1936, i., 386.

"SNAPDRAGON"

SCHEMES for the support of voluntary hospitals are many, and all depend for their success upon the generosity of the public; obviously, those which meet with prompt favour are those which make good reply to the support received. A popular form of appeal is the illustrated feuilleton setting out the objects of the charities advocated, and the publication, with the topical title of "Snapdragon," which pleads the cause of the Norwich hospitals, gives a fine return for the modest shilling expended. Most counties have county pride, and have their individual charm, but few can put forward a better claim for a just complacency than Norfolk, with its diversity of scenery, its historic background, and its artistic record. The Norwich hospitals were early—almost pioneers—in organising contributory movements among the citizens for the support of their beneficent institutions, and in "Snapdragon" we have an account of the recent activities in Norwich to keep enthusiasm in the interests of the hospitals alive. The present scheme, sponsored by an organisation called the "Round-table," owes its activity to the younger professional and business men of the city, and its result is an illustrated Christmas Annual, in the production of which the support of the board of management of the Norfolk and Norwich Hospital and the help of writers and artists have been enlisted. The result is that for the past three years an excellent pictorial magazine at Christmas has come into being and has thoroughly justified its production. The issue in 1930 was 5000 copies. They were sold and followed by the publication of larger and larger editions, until this year a circulation of 15,000 has been reached, and fairly exhausted. The aggregate profits during the six years have amounted to £12,000, for the printers accept the net cost of production only, and all the work of production is voluntary. The articles and stories are given by the writers and artists, and the illustrations are given or lent for reproduction, while a series of amusing competitions are thought out and judged by the committee, with voluntary help from appropriate sources. Among the contents will be found a novel ghost story by Dr. Michael Bulman, chairman of the "Round-table," many amusing archæological notes on old buildings for which the numerous inns and hostelries provide splendid material, and tales of the Norfolk countryside recalling adventures by sea and land. The illustrations are profuse and very good, including some excellent coloured reproductions of well-known pictures, as of George Vincent's "Yarmouth Beach," Mr. Harry Morley's "Cockle Gatherers at Morston," and Mr. A. J. Munnings's "Spelman's Horse Sale." The annual is really worth possessing, and Mr. Herbert Leeds, the editor, and his contributors deserve congratulation for their engaging work.

LADY ALLBUTT

THE death of Lady Allbutt in her ninety-sixth year will be regretted by the large number of people who came to know her through her distinguished husband. Susan England was a Yorkshire woman, and married Sir Clifford Allbutt in 1869, and both at Leeds and Cambridge the home of the Allbutts formed a centre of hospitality. "The connexion with Leeds and Yorkshire may be overlooked," writes Dr. Wardop Griffith, "by those who are not old enough, as the writer of these lines is, to remember Allbutt when he was a member of the staff of the General Infirmary at Leeds, its most brilliant physician and its most enthusiastic supporter. Although it is 47 years since the Allbutts left Leeds, they are remembered by their rapidly diminishing circle of friends and the announcement of the death of Lady Allbutt has brought back to the minds of many the charming couple whose cordial and generous hospitality was so widely and so kindly extended. This was never more unfailing than in the case of young medical men who had everything to receive but nothing to give beyond gratitude for those attentions which meant so much to them." The same generous consideration was continued during the long residence of the Allbutts in Cambridge, where Lady Allbutt remained, during eleven years of widowhood, to be a gracious and sympathetic figure.

EMERGENCY NURSERY SCHOOLS

AT the beginning of 1933 the Save the Children Fund formed an emergency committee to establish open-air nursery schools for children between the ages of two and five years in special danger of suffering through the economic depression. Eight of these schools are now in full swing at Newcastle, North Shields, Sunderland, Middlesbrough, Leeds, Merthyr Tydfil, Brynmawr, and Hoxton, and the Commissioner for the Special Areas has agreed to make grants to the committee for the provision and equipment of others. A report just issued for the year ending last April presents a picture of dramatic effect upon the children attending the schools. Children 4 lb. underweight at two years old have become normal by the age of four; the "greyish-yellow" complexion induced by lack of air and fresh fruit and vegetables has changed to "normal pink and brown," while "legs badly bent are slowly straightening." Sores, verminous heads, discharging eyes, boils, and other conditions associated with poverty are common among entrants, but as a rule these defects rapidly disappear under the nursery school régime. Altogether some 380 children are being cared for in the emergency nursery schools, and 160 more will be accommodated in the two large schools being built at Hebburn and North Shields.

SPECIAL ARTICLES

FOOD FOR THOUGHT*

BY A. F. DUFTON, M.A., D.I.C.

"*They are as sick that surfeit with too much as they that starve with nothing.*" Shakespeare, "Merchant of Venice."

"*Discite, quam parvo liceat producere vitam,*
Et quantum natura petat!" Lucanus, "Pharsalia."

NINETEEN hundred years ago we were bidden by Lucan to learn how little is necessary to support life, and to find out how much nature really needs. And yet, even now, in a period which has been characterised as one of unparalleled study of the science of nutrition, we have to confess our utter ignorance. This lack of knowledge was felt by the committee of the British Medical Association which was set up in 1933 "to determine the minimum weekly expenditure on foodstuffs which must be incurred by families of varying size if health and working capacity are to be maintained, and to construct specimen diets."

In attempting to fulfil these terms of reference, the committee endeavoured to formulate a workable interpretation of the available data, proved experience, and the recommendations of authorities in regard to the quantitative and qualitative food requirements of children and adults. The committee recorded its regret that there exists no satisfactory and accepted routine method by which the nutritional condition or state of individuals can be assessed, remarked that there is a considerable body of opinion that malnutrition is not observable among the poor and suggested that knowledge of the extent, or absence, of malnutrition among varied social groups would, if considered in conjunction with data as to the food intake of those groups, prove of great value and public interest.

SUBSISTENCE DIETS IN THE EIGHTEENTH CENTURY

Now in considering any report the first question that arises is, "Are the conclusions which are drawn reasonable in the light of general knowledge?" In the case of this report of the British Medical Association, I find it necessary to contrast the finding that an expenditure of some 5*s.* 11*d.* per week on food is essential for the maintenance of health and working capacity in an English working man of the present day with the information given in Count Rumford's essay, "Of Food, and particularly of Feeding the Poor."

Of the Bavarian soldier, he writes:

> "The pay which the soldier receives in money (five kreutzers a day), equal to one penny three farthings sterling, added to his daily allowance of bread, valued at one penny, makes *two pence three farthings* a day for the sum total of his allowance. That it is possible in any country to procure food sufficient to support life with so small a sum, will doubtless appear extraordinary to an English reader; but what would be his surprise upon seeing a whole army, composed of the finest, stoutest, and strongest men in the world, who are fed upon that allowance, and whose countenances show the most evident marks of ruddy health and perfect contentment?"

Rumford was not writing from hearsay but from first-hand information. He had completely reorganised and equipped the Bavarian army and was not only lieutenant-general and colonel of the regiment of artillery, but also commander-in-chief of the general staff.

Rumford, who was a pioneer in investigating the science of nutrition and the art of providing wholesome and palatable food at a small expense, gives a very interesting detailed account of the housekeeping of two messes belonging to two different Bavarian regiments, and his army experience was put to good use when he undertook the feeding of the poor.

> "Though the Bavarian soldiers live at a very small expense, little more than *twopence* sterling a day," he wrote, "yet when I compare this sum, small as it is, with the expense of feeding the poor in the House of Industry at Munich, which does not amount to more than *two farthings* a day, even including the cost of the piece of dry rye-bread, weighing seven ounces avoirdupois, which is given them into their hands at dinner, but which they seldom eat at dinner, but commonly carry home in their pockets for their suppers,—when I compare, I say, this small sum with the daily expense of the soldiers for their subsistence, I find it necessary to conclude either that the soldiers might be fed cheaper, or that the poor must be absolutely starved upon their allowance. That the latter is not the case, the healthy countenances of the poor, and the air of placid contentment which always accompanies them, as well in the dining-hall as in their working rooms, affords at the same time the most interesting and most satisfactory proof possible.
>
> "Were they to go home in the course of the day, it might be suspected that they got something at home to eat, in addition to what they receive from the public kitchen of the establishment; but this they seldom or never do, and they come to the house so early in the morning, and leave it so late at night, that it does not seem probable that they could find time to cook anything at their own lodgings.
>
> "Some of them, I know, make a constant practice of giving themselves a treat of a pint of beer at night, after they have finished their work; but I do not believe they have anything else for their suppers, except it be the bread which they carry home from the House of Industry.
>
> "I must confess, however, very fairly, that it always appeared to me quite surprising, and that it is still a mystery which I do not clearly understand, how it is possible for these poor people to be comfortably fed upon the small allowances which they receive. The facts, however, are not only certain, but they are notorious. Many persons of the most respectable character in this country (Great Britain) as well as upon the continent, who have visited the House of Industry at Munich, can bear witness to their authenticity; and they are surely not the less interesting for being extraordinary."

Now Rumford wrote about nutrition in 1795, when François Magendie was a mere boy of twelve and before it was customary to differentiate between protein, carbohydrate, and fat. He fed more than one thousand poor people for more than five years before he wrote his essay but, so far as I am aware, no one, not even Prof. R. H. Chittenden or Prof. Hindhede, the two great exponents of the virtues of a low-protein diet, has yet taken the trouble to analyse the diet he adopted.

The basic diet comprised a pound and a quarter of a very rich soup of peas and barley, mixed with cuttings of fine white bread, and a piece of rye bread weighing seven ounces. Children were allowed the same portion as grown persons, and a mother who had one or more children was allowed a portion for each of them. The quantity of each of the ingredients contained in one portion of the soup was as follows :—

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*Read before the British Association, Section I., on Sept. 11th, 1936.

Ingredients.	In avoirdupois weight. Oz.	Ingredients.	In avoirdupois weight. Oz.
Of pearl barley	$1\frac{1058}{1200}$	Of salt	$0\frac{316}{1200}$
peas	$1\frac{966}{1200}$	weak vinegar..	$0\frac{748}{1200}$
bread	$0\frac{1114}{1200}$	water	$14\frac{432}{1200}$

Some idea of the adequacy of the mineral content of the diet may be gathered from Table I.

TABLE I

—	Fe.	Ca.	Mg.	Na.	K.	P.
	Mg. per day.					
Pearl barley* ..	17·5	25	80	15	266	231
Peas*	10·6	51	66	10	489	224
White bread† ..	0·2	7	6	104	28	24
Rye bread † ..	3·2	48	77	1390	300	293
Salt	—	—	—	2920	—	—
Total ..	31·5	131	229	4439	1083	772

* cf. Thorpe's Dictionary of Applied Chemistry, London, 1921.
† cf. Sherman's Chemistry of Food and Nutrition. 4th ed.

I compute that the diet provides 30 grammes of protein and 960 calories, and the comparison of these figures with some of the dietary standards which have since been proposed is instructive (Table II.).

TABLE II

—	Year.	Protein (g.).	Calories.
Rumford	1795	30‡	960
Voit	1881	118	3055
B.M.A.	1933	100§	3400
Engineers' study group	1936	108	3600

‡ Includes no first-class protein.
§ Includes 50 g. first-class protein.

Now this comparison is, to say the least of it, startling. We must remember that Rumford was a fellow of the Royal Society, elected on the recommendation of its illustrious president, Sir Joseph Banks, and that he was no tyro but a very careful experimenter whose results are worthy of the most serious consideration. What conclusions are we to draw from his large-scale experiments in nutrition?

It seems to me to be a matter of very considerable physiological importance that Rumford's poor people worked long hours upon a diet which, even with the addition of a pint of beer, appears to be quite inadequate to provide for the normal basal metabolism. If Rumford is right two consequences must inevitably follow. Firstly, the basal metabolism of a man must be capable of being reduced to a level far below what physiologists have hitherto believed to be possible, and, secondly, the mechanical efficiency of the body upon a reduced diet must be greater than has been *imagined*.

A PERSONAL TRIAL

Now a comprehensive report upon "Human Vitality and Efficiency under prolonged restricted Diet" was published in 1919 by the Carnegie Institution of Washington, and in it Prof. F. G. Benedict and his colleagues remark that "it is indeed surprising that after 15 years' search for a nutritional level with man markedly different from that of the normal individual, such a level should not have been found in all the researches conducted by this and other laboratories." The existence of this report, which extends to over 700 pages, may suggest perhaps that there is little scope for further work on the subject. A careful study of the report, however, makes it quite clear that this is not the case. The authors' statement, for example, that, although they enjoyed the fullest coöperation of the subjects, it became psychologically impossible to control every meal constitutes a serious confession of failure. They amplify the statement that some of the Sunday meals were excessive in amount with the remark *that it would seem almost incredible that such* quantities of food could be eaten without extreme discomfort, and later in the report naïvely add that this relaxation from the routine made it more possible to keep the men contented and to extend the period of experimental observation.

I would like here to quote briefly from Prof. Hindhede: "Much reading on the subject of nutrition must tend to induce scepticism. There is always the question as to what is really the truth. And in the end a man places most faith in himself."

Prof. Hindhede's suggestion that we should experiment upon ourselves is one which has much to commend it and, in view of Count Rumford's remark that he did not clearly understand how it was possible for the poor to be comfortably fed upon the diet which he provided, I have felt constrained not only to try the diet for a period of 10 days but also to measure my basal metabolism and bodily efficiency. My meals were arranged as follows :

8 A.M.—Breakfast	..	3 oz. rye bread.
1 P.M.—Dinner ..	..	20 oz. Rumford soup.
7 P.M.—Supper ..	..	4 oz. rye bread.

The rye bread was baked at home from rye meal and contained the same proportion of water as the bread baked at the military workhouse at Munich. I was agreeably surprised not only at the palatability but also at the apparent adequacy of this diet. I lost weight, it is true, but this was not unexpected as it takes a long time for the reserves in the body to become adjusted to a change in dietary level. I was not emaciated, however, did not experience hunger, and was able to do my usual daily work. My friends, moreover, remarked how well I looked.

TABLE III

Expired air.	Oxygen used.	Basal metabolic rate.
Litres per hour.		Calories per day.
60·3	2·71	324
60·2	2·83	343
62·8	3·08	370
71·8	2·62	314
—	Mean ..	338

My basal metabolism was determined on four days, expired air being collected in a Douglas bag over a period of 30 minutes, and subsequently measured and analysed. Results were obtained as shown in Table III.

I think that these experiments show that there is no inherent difficulty in accepting Rumford's story as being substantially accurate. The basal metabolism figures are low enough to leave a margin of energy available for work.

For the determination of bodily efficiency step-climbing was adopted, and the method employed was substantially the same as that described by Dr. Vernon and Mr. Warner.[1] As it appeared from their paper that the heat production as determined after an hour and a quarter was substantially equal to the average over a period of three hours' step-climbing, this single determination of the metabolic rate was made, the expired air being collected in a Douglas bag. Results were obtained in experiments upon different days, as given in Table IV.

TABLE IV

Rate of working.	Expired air.	Oxygen used.	Metabolic rate.	Gross efficiency.
Kg. metres per hour.	Litres per hour.		Calories per hour.	Per cent.
16,100	771	47·0	235	16·1
16,100	748	46·4	232	16·3
—	—	—	Mean ..	16·2

These efficiency figures are high, particularly in view of the facts that I was neither inured to the diet nor trained in step-climbing. As the high efficiencies obtainable on a low diet are important, it is of interest that after living for a month on a 1300 calorie diet I was able to do work in step-climbing at the rate of 16,600 kg.m./hr. with a gross efficiency of 25·6 per cent., that is, with a heat production of only 152 calories per hour.

This 1300 calorie diet was used as a discipline in preparation for the stricter diet described above, as it was felt that caution ought to be observed in making such a radical dietary change. It will be recalled that Dr. Tobias Venner, in his "Via Recta ad Vitam Longam," insisted "that it be not done rashly, or too suddenly, but with good advisement, and little by little: for all sudden mutations are to be eschewed as injurious to nature." I gradually accustomed myself, therefore, to less generous fare than usual and for some months for breakfast had only coffee and two ounces of dry bread and no food between dinner and supper. I then adventured on a strict diet containing 32 g. of protein and providing 1300 calories per day, and continued on this for a month. For ten days the diet was as follows:—

8 A.M.—Breakfast ..	3 oz. bread. ½ pint beer.
1 P.M.—Dinner ..	20 oz. Rumford (potato) soup, the ounce of bread being fried in fat.
7 P.M.—Supper ..	4 oz. bread. ½ pint beer.

It is interesting to note that the fat in which the bread was fried together with the pint of beer contributed one-third of the energy which this diet provided and to recall that Rumford advocated the frying of the bread as an obvious means of improving the soup.

Some measurements of reaction times may perhaps be of interest. My attention was drawn to the possible value of such measurements by Dr. Wynter Blyth's paper on Experiments on the Nutritive Value of Wheat Meal which was published in 1889 in the *Proceedings of the Royal Society*. Dr. Blyth's subject lived for a month on distilled water and wheat meal and was tested in Mr. Francis Galton's laboratory. The reaction times were included without comment among other physiological data and are recorded as 150 milli-seconds before the experiment and 100 milli-seconds at the end. The values obtained in my experiments were as shown in Table V., each figure being the mean of 10 determinations:—

TABLE V

—	Before 1300 calorie diet.	After 1300 calorie diet.	After 960 calorie diet.
	Milli-seconds.		
A. F. D. ..	131	115	131
E. M. D. ..	150	125	—

I cannot refrain from expressing my surprise at the difficulty which Prof. Benedict and his colleagues seem to have found in restricting their subjects for 19 days to a comparatively generous diet providing about 1570 calories. My wife had no qualms whatever in joining me on a 1300 calorie diet, and at the end of a month said not only that she felt fitter than before but also that it would be possible to continue for a much longer period. Her reaction time fell from 150 to 125 milli-seconds. Even with protein restricted to 32 g. we managed to contrive satisfying and appetising meals. The following is a typical bill of fare:—

BREAKFAST (8 A.M.)

1 pint coffee, including 7 oz. milk and ½ oz. sugar.
2 oz. bread.
3½ oz. apple.

DINNER (1 P.M.)

Soup { 1 oz. pearl barley.
¾ oz. lentils.
3 oz. potatoes.
1½ oz. carrots.
½ oz. parsnips.
water to 20 oz. }
1 oz. bread.

TEA (4 P.M.)

¾ pint tea, including 1 oz. milk and ¼ oz. sugar.

SUPPER (7 P.M.)

5 oz. bread.
1 oz. butter.
2 oz. tomato.
2 oz. lettuce.

I think that in planning a restricted diet it is a grave mistake to take a normal bill of fare, as Benedict did, and halve the ration. Rumford's psychology was sounder, for he realised that no person will consent to be deprived of the pleasure of eating.

> "The idea of occupying a person a great while," he wrote, "and affording him much pleasure at the same time, in eating a small quantity of food, may perhaps appear ridiculous to some; but those who consider the matter attentively will perceive that it is very important. It is perhaps as much so as anything that can employ the attention of the philosopher.
>
> "The enjoyments which fall to the lot of the bulk of mankind are not so numerous as to render an attempt to increase them superfluous. And, even in regard to those who have it in their power to gratify their appetites to the utmost extent of their wishes, it is surely rendering them a very important service to show them how they may increase their pleasures without destroying their health."

CONCLUDING ARGUMENTS

Finally, perhaps I may be permitted to express the opinion that there is much confusion of thought about the heat loss from the human body. It is illogical, for example, to discuss basal metabolic rates computed in terms of body surface areas as if each area of surface were likely to lose heat at the same rate, when the measurements are made with the subjects lying down in unspecified environments and wrapped in clothing affording little or much thermal insulation. A depression of metabolism upon a restricted diet appears, moreover, to be regarded as a profound physiological enigma and Benedict and his associates have three possible explanations to offer:

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[1] Vernon, H. M., and Warner, C. G.: Jour. of Hyg., 1932, xxxii., 431.

> (1) That with a weight-loss there is less work for the musculature to perform in its ordinary activities.
>
> (2) That there may be a removal of fat that makes the muscles somewhat more flexible and capable of greater efficiency.
>
> (3) That there is a withdrawal from the fluids bathing the cells of nitrogenous material, which material acts as a stimulus to cellular activity.

I think that it will be agreed that a clothed man usually produces considerably more heat than would suffice to maintain his vital temperature. Not only does the thermal resistance of the skin tend to be kept at a low level, but work has actually to be done to get rid of the heat and blood is pumped through venous radiators much as the oil and cooling water of the engine of a high-speed seaplane are pumped round the surfaces of the body and wings.

I hesitate to obtrude my own views, but is it not clear that with a reduced diet less oxygen is required to consume the food? Less blood has to be circulated to transport this oxygen, less moisture has to be exhaled and less air is breathed. All this means that the body has less work to do: the body, in fact, can idle if food is not ingested unnecessarily.

PARIS

(FROM OUR OWN CORRESPONDENT)

TYPHOID VACCINATION

Two communications to the Academy of Medicine on Nov. 24th concerned typhoid vaccination. The first was made by Prof. Tanon and his associates, Dr. Rochaix and Dr. Cambessédés, and the material they have analysed belongs to the Lyons epidemic of 1928 and the Paris epidemic of November, 1933. They have used this material as a criterion of the value of typhoid vaccination and of the duration of its effects, basing their calculations on the fact that a goodly proportion of the male population is vaccinated in the army against typhoid fever at the age of 21. There is no such wholesale typhoid vaccination of the feminine half of the population, and the sex difference in the incidence of typhoid fever in the adult population should, therefore, be a rough guide to the value of such vaccination. In the Lyons epidemic the patients were classified in eight age-groups. Now, up to the age of 15, the incidence of typhoid was slightly higher in males than in females, whereas in the next age-group, 16–30, there were only 210 male to 447 female cases. Between 31 and 40, there were only 20 males to 153 females, and between 41 and 50 there were 44 males to 113 females. Even at the comparatively high age of 51–60 the ratio was only 35 to 79, but this difference had almost disappeared over the age of 60. Prof. Tanon and his colleagues have come to the conclusion that the immunity conferred by typhoid vaccination lasts much longer than has hitherto been thought to be the case, and that "it is legitimate to think that a single reinjection of a small dose would suffice every 15 or 20 years to assure the duration of an adequate immunity." The time may come when, in the opinion of these authorities, it will be considered advisable early in childhood to provide associated vaccination against typhoid fever, diphtheria, and tetanus. Revaccination against typhoid fever at the age of 15 and again at 21 should be sufficient till the age of 35 or 40.

The second communication to the Academy of Medicine was made by Prof. Hyacinthe Vincent, whose figures make lugubrious reading. He calculated that in the course of 12 recent years—1919 to 1921, and the nine years, 1925 to 1933—there have been more than 23,000 deaths from typhoid fever in France; and if in the same period every twelfth or thirteenth case of typhoid fever proved fatal, there must have been between 275,000 and 300,000 cases—impressive figures. The Academy of Medicine unanimously passed a resolution on this occasion recommending early compulsory vaccination against typhoid and paratyphoid fever of all the relations and contacts, when these diseases break out either singly or in epidemic form.

BLOOD TRANSFUSION AND THE HEALTH OF THE DONOR

Recent investigations conducted in Strasbourg are a reminder that it takes two to make a blood transfusion. Hitherto, the anxiety expressed with regard to the health of the donor has, as a rule, been only for the benefit of the prospective recipient of blood. The donor must not be suffering from this or from that ailment lest the patient he is supposed to benefit contracts it. Now, Prof. Merklen and certain of his colleagues in Strasbourg have undertaken blood examinations of 20 donors, all of whom had furnished more than 2 litres of blood. Their red cells were, with only one exception, healthy and numerous enough, and the hæmoglobin was never below 60 per cent. The leucocyte picture was unsatisfactory in this respect that in as many as 10 cases there were signs of neutropenia, which in three cases was pronounced. This hint of agranulocytosis did not appear to be related to the quantity of blood withdrawn, as it was found in persons who had given only a little blood—i.e., 2 to 3 litres—whereas there was no sign of it in donors who had parted with 10 to 12 litres. The lesson to be drawn from these observations is that the losses of red cells are made good more easily by the blood-forming tissues than are the losses of granulocytes. The remedy for this state of affairs is to discontinue the donation of blood for a certain time whenever neutropenia is detected. When this injunction has been obeyed in Strasbourg, the granulocyte picture has, as a rule, returned to normal pretty soon. Apart from this disquieting sequel to blood donation, it seems that, like the quality of mercy, it blesseth him that gives as well as him that takes, for in addition to an almost constant state of euphoria experienced by the donor, his capacity for physical and mental work is enhanced and his weight is increased, sometimes in no mean measure.

COMPULSORILY AND FACULTATIVELY NOTIFIABLE DISEASES

On Jan. 1st, 1937, a Government decree will come into force regarding notifiable diseases and the administrative action (disinfection, &c.) to be taken in connexion with them. The list of compulsorily notifiable diseases includes the typhoid and paratyphoid fevers, exanthematic typhus, small-pox, scarlatina, measles, diphtheria, miliary fever, cholera, plague, yellow fever, amœbic and bacillary dysentery, puerperal infections, cerebro-spinal meningitis, acute anterior poliomyelitis, trachoma, the undulant fevers, leprosy, and *spirochætosis icterohæmorrhagica*. The list of facultatively notifiable diseases includes pulmonary tuberculosis, whooping-cough, influenza, pneumonia and broncho-pneumonia, erysipelas, mumps, and ringworm. To public health experts living outside France it may seem paradoxically strange that the notification of pulmonary tuberculosis is facultative, whereas that of the undulant fevers is compulsory. The problem is a clear illustration of the adage that legislation must never outrun the goodwill of its intended beneficiaries. Both among the general public and an influential section of the medical profession there is a disinclination, amounting often to a definite aversion, to the stigma and other disabilities attaching to the notification of tuberculosis. And it is doubtful if, at the present time, any useful purpose would be served in flouting this feeling by rendering the notification of pulmonary tuberculosis compulsory. The psychological and certain other aspects of the problem of the undulant fevers are quite different. For one thing, their recognition is of such recent date that there has not yet been time for the establishment of vested, emotional interests. Then again much depends on the fact that the diagnosis of an undulant fever hinges on laboratory tests and consequently on the coöperation with general practitioners of laboratories whose staffs are capable of notifying their findings and are not hindered from doing so by personal inhibitions.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

GENERALISED NEUROFIBROMATOSIS

At a meeting of the Edinburgh Pathological Club last week Dr. J. H. Biggart described an interesting case of generalised neurofibromatosis. The patient showed not only numerous fibromata mollusca, but also tumours on the peripheral nerves and cauda equina. There were also a plexiform neuroma, and several localised nodules on the autonomic nervous system. In the left adrenal gland a small ganglioneuroma was associated with a tumour of the medulla—a chromaffinoma. The patient died from a sarcoma which originated in a nodule on the right brachial plexus. Histological investigation showed that the changes characteristic of the disease were to be found in almost every nerve, even though little might be noted on naked-eye examination. Such changes could be traced even to the muscle spindles and to small nerves supplying the sweat glands. Whilst in most nerves the process was of long standing and sclerotic, foci of cellular activity were found. A study of these suggested that the proliferating cells were those of the neurilemmal sheath and in the early stage there was no proliferation of any other cell type. Dr. Biggart said that the association of the disease in this case with ganglioneuroma and chromaffinoma, and the occasional association of the disease with tuberous sclerosis, glioma, and acoustic nerve tumours suggests that von Recklinghausen's disease is due to a congenital anomaly of the neuroectodermic crest, and that its various forms represent merely a varying expression of this anomaly.

OVARIAN HORMONES

Prof. G. W. Corner, of Rochester University, New York, gave a lecture last week in Edinburgh on the ovarian hormones and the ovarian cycle. It has long been believed, he said, that in primates the menstrual cycle depends on the production of some form of hormone from the corpus luteum. This belief has been embodied in the law "without ovulation, no menstruation." In one of his monkeys however, the lecturer noted that, although menstruation occurred frequently, there was no evidence of ovulation. He further observed that a monkey might menstruate in one cycle without ovulation, and in the next cycle with ovulation. Moreover there is some evidence that menstruation may be anovular in human subjects, although less commonly. In support of this Dr. Corner quoted the case of a young girl who was admitted to hospital suffering from diphtheria. Her mother happened to know the dates of two periods before admission. Menstruation occurred in hospital and was followed 2–3 days later by death from toxæmia. Examination of the ovaries showed no sign of pending ovulation, although the patient had been known to menstruate on these three occasions.

It is known that menstruation-like bleeding can often be produced in monkeys by removal of the ovaries. In castrated females menstruation can be brought on by giving œstrin and then withdrawing it. The blood level of œstrin rises until just before the onset of menstruation and then drops suddenly. The œstrin content of the urine is usually low at the onset of menstruation.

In monkeys, said Dr. Corner, a useful test for the presence of œstrin is the colour of the "sexual skin" in the neighbourhood of the vulva. It was later observed that giving anterior pituitary extract and then withdrawing it might also produce menstruation-like changes. The bleeding thus produced could be inhibited if, when the administration of anterior pituitary extract was stopped, œstrin injections were begun. This suggests that the anterior pituitary extract was acting by raising the blood œstrin level. This may be taken as another proof of the œstrin-deprivation theory of menstruation, that sudden lowering of the œstrin level can produce menstruation-like changes. If this theory is correct, then giving œstrin at the appropriate time should inhibit menstruation. This has not been found to be so—an observation which the lecturer regarded as very puzzling.

BUCHAREST

(FROM OUR OWN CORRESPONDENT)

THE SUPPRESSION OF CONCUBINAGE

Dr. J. Bancilla, chief prefect of the county of Bihor, Transylvania, in a memorandum to the Ministry of the Interior, called attention to the dangerous spreading of concubinage. This social and moral disease chiefly involves the simpler classes of the population, for it relieves them of the expense of procuring the numerous requisite documents as well as allowing less exacting ties and obligations. Because of the legal and social position of the children born from these associations, the custom of concubinage if not duly checked will become a national peril. Dr. Bancilla has enacted in his own county that all marriage documents shall be issued free to those having certificates of poverty. The Minister of the Interior has accepted the necessity of cancelling all expenses connected with drawing up the documents, and has even simplified matters by reducing the number of documents to two.

ANTI-GAS PRECAUTIONS

The Ministry of Public Health has made far-reaching arrangements for protection against gas attacks. A circular has been sent to all public health inspectors ordering them to give lectures and making it compulsory for the whole population, without exception, to procure gas-masks. A special committee has to be appointed in each municipality to visit all houses and decide whether the basements and cellars are gas-proof and to advise how to render them safe. The same committee has to supervise the plans of new buildings, which must be provided with gas-proof basements, having ample accommodation for all the tenants. A factory manufacturing gas-masks in Bucharest and working full time has supplied up to now the demand in Bucharest alone, the country having no access to gas-masks as yet; the Government, therefore, is thinking of erecting another factory to be able to cope with the demand.

FOREIGN STUDENTS IN THE UNIVERSITY OF CLUJ

The medical faculty of the University of Cluj fixed Nov. 16th for the entrance examination that all first-term students have to pass before registration. A large group of Rumanian students blocked the entrance of the Pasteur Institute, where the examination is held, and prevented the students of the minority races—Hungarians, Germans, and Jews—from entering. The president of the examining committee, M. Dragoiu, did everything in his power to bring the obstructing students to a better insight, but in vain, and he therefore suspended the examination until order had been restored. Out of the 200 applicants only 127 eventually passed, it being stated that there was no room for more students. The Rumanian students demand that the minority races shall be admitted only in the same ratio as that in the whole country—i.e., that the Hungarians shall not exceed 24 per cent., the Germans 10 per cent., and the Jews 3 per cent. The number lately admitted is well over these percentages, and the medical students in Cluj therefore protested to the dean of the faculty and are threatening to strike.

MEDICAL MEMBERS OF THE CHAMBER OF DEPUTIES

The Rumanian parliament has never before had so many medical members. Their total number amounts to 30, of which 9 are members of the Senate, and 29 are members of the Chamber of Deputies, amongst them M. Costinescu, Minister of Public Health, and some prominent professors of the University of Bucharest. Since it is probable that the present régime of Liberals will last for some time, there is a prospect that the country's public health will benefit from the large number of medical men taking part in its legislation.

UNITED STATES OF AMERICA

(FROM AN OCCASIONAL CORRESPONDENT)

LIFE EXTENSION

FOUNDED in 1914 the Life Extension Institute was employed for the first six years by a single large insurance company. When the statistical department of this company estimated the results of the periodic medical examinations of its clients, made through the facilities of the Institute, they were so astonishing that the medical and actuarial departments would not accept them without making independent studies. Eventually, however, all three departments agreed that an expenditure of $60,000 had profited the company, through premiums of people whose lives were extended, by the amount of $120,000. In following years 44 other life insurance companies joined the service. In 1926 Prof. Irving Fisher reported that 500,000 people had been examined through the Institute.[1]

There has for years been a dispute between organised medicine and the Institute as to whether this non-profit organisation under business management was or was not practising medicine. As long ago as 1925 an editorial in the *Long Island Medical Journal* claimed that the giving of "hygienic advice" constitutes the practice of medicine "as surely as the administration of morphine." But to-day hygienic advice is given by school text-books and school teachers in almost all our public schools. Another objection has been that the doctor making an examination for the Institute does not receive the whole fee paid by the patient, a part being retained by the organisation for promotion and working expenses.

The dispute has been taken into the New York courts and referred by them to a referee who was instructed to take evidence and to report. The referee has now made a report which has been confirmed by the court to the effect that during the hearings and before their completion the parties entered into a stipulation settling the litigation. Under this stipulation the Institute agreed to an injunction restraining it from practising medicine and that upon certain conditions it would not in future make physical examinations or any reports or recommendations in regard thereto and would not employ any physicians for either of these purposes. The American Medical Association regards this result as a triumph for its cause. *Insurance*, on the other hand, points out that the referee has expressed doubt as to whether making such examinations in the manner prescribed by the Institute's charter, wholly unaccompanied by any treatment and advice for the physical conditions disclosed by the examinations, does constitute the practice of medicine. The stipulation makes it unnecessary for him to express any opinion as to the questions of law and fact.

The Institute has issued a bulletin stating that under a new plan all services heretofore rendered by it which might be said to constitute the practice of medicine, will be carried on separately under the supervision, control, and personal responsibility of members of the medical profession only—a group of physicians who have been associated with the Institute for many years. It is expected that all the details of this new plan will have been completed by Jan. 1st, 1937. The Institute will continue to operate its laboratories and will also enlarge and broaden its general educational efforts in the interest of life extension and public health.

THE ORGANISM OF HOG CHOLERA

Since American hog cholera was recently attributed to the salmonella organism, *Bacillus suipestifer*, in your columns[2] your readers will be interested in a letter from John R. Mohler, chief of the Bureau of Animal Industry, in the U.S. Department of Agriculture.[3] Dr. Mohler writes that hog cholera is caused by a filtrable virus, a discovery which he claims was made more than 30 years ago in his department. Aside from some dubious results with guinea-pigs this virus has never been propagated in species outside the family suidæ. *B. suipestifer* is commonly a secondary invader in hog cholera and whether associated with hog cholera or not, it causes in pigs a disease called salmonellosis.

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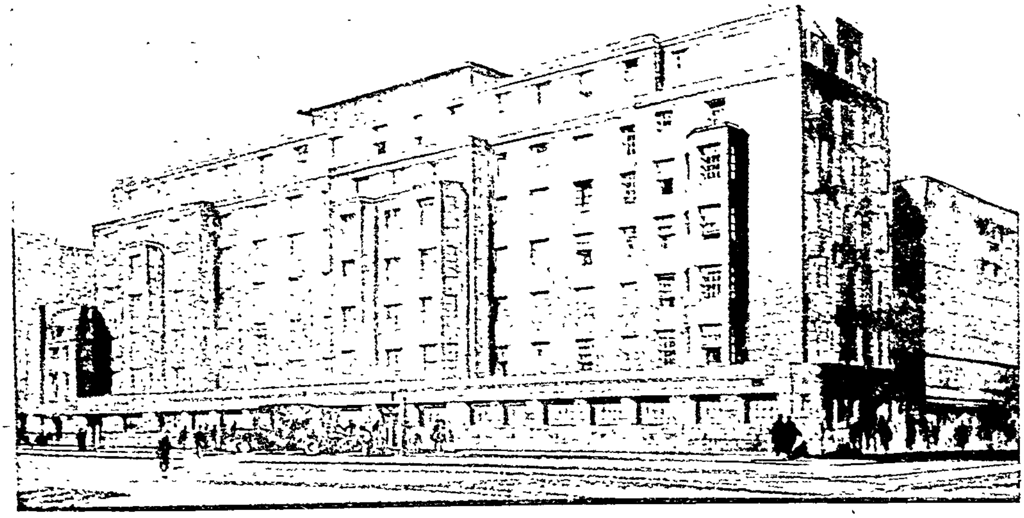
[1] Fisher, I.: Lengthening of Human Life in Retrospect and Prospect, Amer. Jour. of Pub. Health, January, 1927, p. 1.

[2] THE LANCET, Sept. 26th, 1936, p. 741.

[3] *Jour. Amer. Med. Assoc.*, Nov. 21st, 1936, p. 1739.



The new pay-bed hospital and nurses' home

CENTENARY EXTENSIONS TO UNIVERSITY COLLEGE HOSPITAL

THE two new buildings that were built to commemorate the first centenary of University College Hospital were formally opened and inspected on Dec. 16th by the Duke of Kent. The smaller building, behind the Obstetric Hospital and in direct communication with it, contains the new antenatal and infant welfare clinics in the semi-basement, in order to be level with the old out-patient department. On the main ground floor there is the postnatal clinic, with four examination-rooms and three cubicles for suspected infectious disease, having direct access to the street to avoid contact with other patients. On the floors above there are the quarters for the domestic staff. The other building accommodates in one wing the new paying patients' hospital, and in the other the additional nurses' home for 89 sisters and nurses, including the staff for the pay-bed wing.

There is in the new extension accommodation for 77 paying patients, the majority of whom are in separate rooms, occupying the first to the fifth floor and served by two bed lifts and a passenger lift. Each room is fitted with an observation panel, for use only in serious cases, to avoid disturbing the patient, and on each floor the sister's room commands a view of every door and signalling light—there are no bells. In every room there is a panel with points for the G.P.O. telephone, radio, and variable electric light. On the sixth floor there are two operating theatres, with a cleaning- and a sterilising-room common to both. The hospital is stated to be the first in the country in which the theatres are equipped with an automatic supply of hot and cold distilled and sterile water, and a new type of steam suction apparatus has been installed. There is a reserve lighting system and all the engineer's controls are in the basement or on the roof so that adjustment or repairs will not intrude upon the hospital routine. The building is "sound-proofed" and special care has been taken to avoid unnecessary noises. Convalescent patients have access to the roof and to a solarium on the sixth floor. The main and the special diet kitchens are in the basements, and food is passed to the ward kitchens on each floor and served from electrically heated trolleys immediately outside each patient's room. On the ground floor there is a reception-room for relatives and visitors, three consulting-rooms for outside doctors, an X-ray diagnostic department, and offices.

The wing has been built for those of limited means who are outside the scope of State aid and yet cannot afford the expense of a nursing-home. The charges are from six guineas a week. The Duke of Kent, speaking as president of the hospital, said that lack of financial support had often compelled them temporarily to abandon schemes that they knew were essential, but the new buildings were the realisation of one of those schemes. Some £300,000 had been spent on the new extensions, and though the response to the appeal for funds had been encouraging, it had fallen far short of the £250,000 asked for.

INDUSTRIAL WELFARE SOCIETY.—The next lecture course in industrial law arranged by this society will be held in Birmingham (Chamber of Commerce, 95, New-street) beginning on Monday, Jan. 25th, 1937, at 6 P.M., for ten weeks. It will be conducted by Mr. H. Samuels, barrister-at-law. The syllabus includes lectures on industrial law, the law of master and servant, factory Acts, employers' liability and workmen's compensation, trades unions and associations, national insurance, taxation and rating law in relation to labour management, pension funds and other forms of welfare, elements of company law, and law relating to shops, and it is suggested that the course should prove useful to medical practitioners. Further information may be had from the secretary of the society, 14, Hobart-place, London, S.W.1.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be be seen later in the half-yearly index.

BY A CHRONICLER

IV

CONSIDERATION of the far past has led consecutively to that of the near past, but such continuity is absent in looking at the present, and what will be the influence in the future of increased medical knowledge communicated to a public educated to learn I do not try to guess. It can only be said that the influence is beginning to be felt to-day, and that medical information in the general press is becoming a factor in the betterment of society. The Government departments are to be credited with the issue at moderate prices of reports dealing with various questions of public health and therapeutics as they become urgent or topical, and in this way all journals are kept regularly informed on medical affairs at large; the text is with them and it is their responsibility to expound it to the public. But these reports are directed to questions of public interest, and personal curiosity or anxiety is not stimulated or relieved by them.

At the opening of the medical session at the Charing Cross Hospital medical school last October, Lord Iliffe asked the audience to ponder the ignorance shown by the lay public on the elements of medicine: "It would hardly be an exaggeration," he declared, "to say that most of us know more about our motor-cars than our bodies." A wise address followed on the beneficent potentiality of a lay press that should be well informed upon medicine, but in instituting a comparison between the motor-car and the human subject the speaker supplied the exact evidence of the difficulty inherent in the dissemination of much medical teaching, teaching that, if understood, would be of the greatest value to the public but which, if misunderstood, may act reversely. Lord Iliffe asked this pertinent question: "There must always be a considerable hiatus between the discovery of new medical and surgical methods and their universal application; what could more readily help to bridge that gap than a publicity carefully controlled?" The answer is that nothing could be more effective, but the difficulties in securing such control are great, and important organs of the press, impatient of any restriction on their freedom, have before now resented the medical reaction against publicity.

A hoary story is that of the impressionable man who, reading a medical journal, declared that he had every complaint alluded to except housemaid's knee; and with the wide attention given at present, in salons as well as consulting-rooms, to the vagaries of an intermediate sex, he would not have had to make the exception. But if he need not read a medical journal in order to dither, but can find the ominous material in his daily paper, it is necessary in his interests to see that scares are minimised, or the seed for bumper crops will be supplied to the well-prepared tillage of the charlatan. It is the naturally close attention which members of the public give to any counsel bearing on what they believe to be a trouble of their own which makes necessary a control over medical contributions to the lay press, and which is exercised with care and ability by certain great newspapers, but not by all. And it is respect for the public weal that dictates the policy of the General Medical Council when exercising its disciplinary authority in helping to secure that control.

* * *

We may assume that those are right, and paying a just tribute to the medical profession, who consider that the doctor has a mission to educate the public on health questions by his spoken words or writing, but the methods employed and the matter communicated need always to be watched lest harm rather than good ensues. The public to-day is able to follow general scientific instruction and the application of its lessons to the circumstances of life. All general information that is sound on things medical must be welcomed by as much as that information illustrates the power of medical research, and the hard training and the persistence required by those engaged in it. Any précis of definite advances in knowledge and their bearing upon medical practice should surely find a place in current reading. It does so, and here the openings for the journalist are without number. The many questions of public health, sanitation, and economics possibly opened up for discussion by Balbus, when building his wall, have been touched upon, and, while it may be necessary for the medical journal to deal with all of them, any of them may fall within the province of the general newspaper. Then, as they become "news-stories" in the press the medical aspects may demand consideration. The demand is met often in full and informing manner, and the coöperation of medicine is prompt.

But the ground gets less sure when we come exactly to those topics which are naturally of the greatest interest to the individual reader of his newspaper. He asks for definite instruction how to be made fit and how to keep fit, and not for epidemiology or statistics. The situation would be simple if we were dealing with the motor-car and not with the human subject; if we were dealing, that is, with something that can be standardised and proved able to accomplish certain things, something that can be investigated mechanically to ascertain how it does or why it fails to do those things, and something that can be subjected to exact and apt adjustments where remedy is required. But the remedies and adjustments for human defaults, physical and other—and do not forget the other—cannot be standardised for individuals, since many factors having quite different values will be present. And no particular prescriptions either of régime or therapeutics can ever be universally useful. For this reason the medical advice in the non-medical journal has a chance of being either too vague to meet an individual need or too definite to be a safe guide.

* * *

I was once present at a debate on the value of the publication of signed medical articles in the lay press, opened by the editors of a daily and a medical journal. There was no real difference of opinion expressed until the contentious point was reached as to the propriety of a medical signature in a lay organ, and then the point at issue was how far the signature had the importance which was apparently attached to it. The lay opinion was that the action of the General Medical Council in submitting certain practitioners to a penalty for signing medical articles in popular journals was unfortunate, inasmuch as it prevented medical opinions of a valuable sort from reaching the public. The medical arguments were directed to showing that it was often not possible for the editor of a popular newspaper to [illegible] whether an article, although signed by a doctor, contained sound advice. Assuredly, the public wants to hear of new treatments, often for personal and intimate reasons, but they may regard as a guarantee of the soundness and value of any advice given the signature of any medical man whom they believe to be a special authority because his name is well known, but who might not be regarded in the same way by his colleagues or by experts in the branch of medicine under discussion. It might be for the very reason that his name was well known that the editor of a general newspaper desired to see it in his columns, when it would not follow that anything the doctor had to say on definite lines of treatment would be suitable for a general audience, the implications of disease not being precise nor the reactions of patients to disease or treatment similar. For this reason the General Medical Council has warned doctors that they should not append their signatures to descriptions of treatment as, in the by and large, the advice given could not be generally useful. Not to accept the warning is to run the grave risk of a loss of professional status.

The General Medical Council has been much abused for this attitude but it is difficult to point to any example where the Council has used its powers or its discretion unfairly. It is, moreover, by its constitution a *censor morum*, and it is obvious that the doctor who sends signed contributions to the lay press is open to a charge of public advertisement. The possible result of pecuniary advantage to himself and an undue enhancement of his merits in the public eye have to be taken into account when signed communications from a doctor appear in the lay press. The effective control over publicity desired by Lord Iliffe—and by everyone who has given thought to the matter—is supplied to-day in important journals by the appointment of a medical editor or correspondent, and where supervision is thus exercised the signed article which should not appear does not appear. But every newspaper cannot carry such a member on its staff, so that there are numerous openings where the doctor can express his views without control. They are largely made use of, and much good with little harm ensues. But if a doctor misuses these opportunities for publicity, or seeks them from a wish to attract notice, he does so with a certain risk, and this is as it should be, and it is the duty of the General Medical Council to warn him of that risk. It is not a great one, as the published proceedings of the Council show. But the editors of newspapers, especially local organs, might remember that quotations from the medical press, and the writing-up for general circulation of matter that has a sensational side, may damage any doctor whose name is introduced with the intention to give a responsible air to the paragraphs, even though the kindly idea may have been to help the doctor along his professional way. To avoid misconstruction the victims of mistaken kindness write sometimes to repudiate any part in the publicity gained, a course which, the cynic is apt to say, has the effect of doubling the advertisement.

* * *

That the medical subjects which get popular comment should owe their selection to sensationalism rather than to scientific importance is natural—newspapers cannot always be teaching, and it is their legitimate function to interest and amuse. The cases in law courts, when reported elsewhere than in legal journals, do not owe their prominence to any legal significance, and only rarely reveal places where the law needs altering in the public interest. They are reported because they are good news. And it is the same with medical events, and in both cases the technical terminology may be embarrassing to the untechnical writer. In dealing with medical matters this difficulty is, as has been said, a real one, and one that may account for the attraction that quotation of the very long word has for the lay journalist. The involved term or compound of terms that may be needed in medical writing or debate to convey complete meaning to an expert appeals inevitably to the popular commentator. There is something scientific here, he concludes, as well as something to joke about, and the article with the sesquipedalian title is always freely quoted, while the accurate transcription of the imposing heading is used to acquit the writer of understanding the subject. (I have been taken that way myself when getting out of my depth in a review.)

That the imposing and obscure word has a charm might be submitted to proof by any who, having consulted Liddell and Scott's dictionary for the longest word therein, should persuade a medical editor to let him employ it as a title. The word, beginning "’ορθρο," has fourteen syllables and it is not a purely silly fancy that it should find itself introduced into medical literature. It would make a neat description of such a character as a neurotic governess, and if any humorous psychiatrist should employ it as a short cut to explanations he would get undoubted publicity; his language would be cited in many quarters as an example of medical pomposity. But I feel that sometimes the commentator along jocose lines, even while laughing, may be getting a mild thrill out of what he thinks may be blasphemy against a mysterious message. If this occurs, the journalist, however modern in outlook, is back in the far-off time in the history of medicine when the mere word was held to have magical force. The charm Abracadabra, which had a world-fame as a preventive of ague and toothache, came into use in the third century, but was still in vogue as a talisman at the time of the plague in London. The charm consisted of the fateful word arranged as an inverted pyramid; written on a parchment slip it was suspended round the neck. De Foe, in his "Diary of the Plague," is severe on the credulity that could have led to any confidence in such an amulet, and what a remarkable piece of journalism the "Diary" is? It reads in every word as the evidence of an eye-witness, but the saddler in Whitechapel, the citizen who appears to be writing it, is more of a fictional character than Robinson Crusoe. For De Foe was a baby, two or three years old, when the great plague attacked London, and his vivid account is founded upon the weekly bills of mortality and certain pamphlets published during the epidemic, notably the Rev. T. Vincent's "God's Terrible Voice in the City by Plague and Fire."

The word "abracadabra" was being used as a talisman in Rome in the days of Galen and it is possible that a belief in its power, still lingers. For even to-day a queer sonorous name for a drug or a treatment has a certain power as all advertisement agencies know. Jim Pinkerton, Stevenson's delightful adventurer, proved this when, in consulting a

(*Continued at foot of next column*)

CORRESPONDENCE

ŒSTRIN AND CANCER

To the Editor of THE LANCET

SIR,—A propos of the correspondence which has recently appeared in THE LANCET on this subject may I suggest that the long-continued administration of œstrin to mice during a large part of their lives, though it may result in mammary cancer, is hardly to be compared with its therapeutic use in man when the purpose is merely to supply an already existing deficiency, or to administer it during a short period only.

At first I was perplexed by the telegram from Dr. Lacassagne, published in your issue of Dec. 19th, in which he says, "Adenocarcinoma of the breast produced by œstrone only obtainable in susceptible mice," because it seemed to me incompatible with the following quotations from his own papers. In discussing the relative influences of heredity and of œstrone in the production of mammary tumours, he refers [1] to an experiment in which he gave œstrone to mice belonging to two strains (xvii and R 4) among which "les femelles fournissent moins de 2 p. 100 d'adénocarcinomes mammaires." He adds that "entre le douzième et le dix-huitième mois, tous ces animaux, mâles et femelles, supposés héréditairement réfractaires au cancer, avaient, eux aussi, présenté des adénocarcinomes mammaires (à l'exception d'un mâle, mort au neuvième mois d'un abcès de la prostate, et chez qui les glandes mammaires étaient d'ailleurs en hyperplasie marquée). L'explication par un 'facteur cancer' (dominant ou récessif), du taux variable de carcinomes observés chez les lignées sélectionnées de souris, était mise en défaut."

And in one of his lectures given recently in the United States he makes a similar statement,[2] as follows:—

> "In a strain of mice in which only 2 per cent. of the females develop spontaneous adenocarcinoma weekly injections of œstrone were begun shortly after birth. After eight months none of the surviving animals presented tumors, while in a similar period almost all of the mice of the strain previously studied had died of adenocarcinoma of the breast. In the ninth month, however, the appearance of a cancer was observed, and in the course of the following months others appeared, until, between the twelfth and eighteenth months, all the mice of this strain died of malignant tumors of the breast, though their appearance was greatly retarded in comparison with the other strain. All took place then as if, in the animals of this strain, the cancerous transformation of the cell required a longer time."

Clearly there is no discrepancy between Dr. Lacassagne's telegram and his scientific writings; any seeming lack of correspondence between them depends upon the use of "susceptibility" and "refractoriness" as applied to the aptitude for different strains of mice to produce mammary tumours. Lacassagne does not apply the term "refractory" to mice of a strain in which as few as 2 per cent. of the females eventually suffer from mammary cancer.

I think it would be lamentable if any misunderstanding should start unfounded fears and check at the outset the use of a promising therapeutic agent.

I am, Sir, yours faithfully,
HAROLD BURROWS.

Research Institute, The Royal Cancer Hospital,
Fulham-road, S.W., Dec. 18th.

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[1] Lacassagne, A.: Paris méd., 1935, p. 239.

[2] Lacassagne, A.: Amer. Jour. Cancer, 1936, xxvii., 217.

(Continued from previous column)

dictionary for the spelling of hectagonal, he came across the word, new to him, hebdomadary. "You're a boss word," he said, "and before you're very much older I'll have you in type as long as yourself." So he did, and that "monster olio of attraction" popularly known as "The Dromedary Picnics" followed.

* * *

It is a long way from the days of Hammurabi to those of the motor-car, but the thread of medical journalism, as unwound with some guessing, appears to me unbroken. "Il m'est permis de reprendre mon bien où je le trouve" said Molière. I fear that these chapters have betrayed not only an ingrained tendency to digress but no scruples as to using the learning of others.

*** *During next month A Public Health Clinician will be responsible for these columns.*—ED. L.

THE R.C.S. AND ITS MEMBERS

To the Editor of THE LANCET

SIR,—At long last the council of the Royal College of Surgeons of England has broken silence, and given considered replies (can one call them reasons?) to the century-old request of the members for some representation on its council. What are they?

> 1. "The main function of the College is to promote the study and practice of surgery."

Have the members, who are nine-tenths of the College and are the largest body of practising surgeons in England, no interest in the study and practice of surgery?

> 2. "An opportunity for discussing matters is afforded at the annual meeting of fellows and members."

In recent years many occasions have occurred when no statutory annual meeting has taken place owing to those present being one or two short of the necessary quorum of thirty, although the president and many members of the council were there, but by a unique regulation of the council they are not qualified to form part of the quorum. The quorum of the House of Lords is four, that of the House of Commons is thirty—the same number as that of the College—but the members of the Cabinet are not disfranchised for the purpose of a quorum. When the annual meeting does take place the report of the council refers only to matters which have been dealt with in the past year and are already faits-accomplis, as occurred recently on several occasions. "Too late" was the reply in reference to them.

> 3. "Representations made to it (the council) by any member or body of members will receive careful consideration."

This is a poor substitute for representative members having an opportunity of setting out the views of members on questions as they arise at council meetings—the effective time—or of presenting and discussing thereat matters referred to them by their brother members.

The poverty of the response of the council to the resolution passed at the last annual meeting is a great contrast to the wealth of the arguments which have been brought forward in favour of representation of members on the council in the interests of the College, its members, and the public.

I am, Sir, yours faithfully,
REDMOND ROCHE.

Eccleston-square, S.W., Dec. 18th.

MINOR OPERATION FOR PHIMOSIS

To the Editor of THE LANCET

SIR,—I was interested in Dr. Mary Barton's note under this title in your last issue, for I too have been impressed by the number of tight foreskins in the new-born, and also by the fact that there is hardly ever the least sign of obstruction to the passage of urine: and since nature is unlikely habitually to bungle the manufacture of these parts I have come to the conclusion that the tight foreskin of infancy is not abnormal.

After all, there is no advantage in a retractable prepuce at this stage of life, if we exclude the washing "complex" of the mother or nurse. Later on, if left to itself the prepuce can be expected to enlarge in response to the needs of an altered function: witness the rarity of the operation for circumcision in the adult.

I am, Sir, yours faithfully,

Findon, Sussex, Dec. 19th. W. R. E. HARRISON.

GRAINS AND SCRUPLES

To the Editor of THE LANCET

SIR,—Abuse of the journalist by novelists existed later than the days of Dickens, Balzac, and Thackeray. Bulwer Lytton, smarting no doubt under reproof from the *Athenæum*, described in *Paul Clifford* the instruction given by an old hand on the staff of the "Asineum" to a new recruit starting on the work of reviewing. The tyro was informed that his output must fall under one of three headings: "slashing," "plastering," or "tickling." in other words, gross abuse, fulsome praise, or saying nothing in particular.

I am, Sir, yours faithfully,

Dec. 21st. A NOVEL READER.

THE PULMONARY PLUS PRESSURE MACHINE

Dr. E. P. POULTON writes: "It has been brought to my notice that I may not in the words used in your issue of Oct. 24th have given full credit to Dr. J. Plesch for his invention of the plus pressure machine, used in the treatment of pulmonary œdema of circulatory origin. If so, nothing was farther from my intention. The machine is his, as I have indicated on at least three previous occasions[1] and any modification of mine, which may make it more practical, is of small importance. The machine is also of value in treating paroxysmal breathless attacks, especially at night, and Cheyne-Stokes breathing, and I hope it will come into general use."

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[1] Campbell, Argyll, and Poulton, E. P.: Oxygen and Carbon Dioxide Therapy, 1934, p. 149; Taylor's Practice of Medicine, 1936, pp. 150, 279.

INCREASE OF POPULATION IN U.S.S.R.—About six months have passed since the passage of the Soviet law prohibiting abortions and subsidising motherhood by allowances for large families and provision of maternity homes, creches, and kindergartens. The Soviet newspaper *Izvestia* lately carried out an investigation on the effect of the new law on the registration of pregnancy. Nineteen typical cities in different parts of the Union formed the subject of the inquiry, one registration point being taken in each city. It was found that whereas last year from July to November the number of cases of pregnancy registered at these points and not operated on for abortion was 33,796, the corresponding figure this year was 68,511.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Comdrs. A. C. V. Green to *Hawkins*; H. Hurst and G. S. Rutherford to *Drake* for R.N.B.

Surg. Comdr. (D.) S. E. Brown to *St. Angelo* for R.N. Hospital, Malta.

Surg. Lt.-Comdrs. D. F. Welsh to *Drake* for R.N.B.; F. W. Gayford to *Malaya* (on commg.); and G. Rorison to *Victory* for R.N.B.

Surg. Lts. H. O'Connor to *Codrington;* F. H. Ward to *Frobisher;* C. P. Collins to *Drake* for R.N.B.; B. M. Goldsworthy, M. M. McArthur, F. W. Baskerville, P. G. Burgess, I. McN. A. Drysdale, I. C. Macdonald, C. J. P. Pearson, C. J. Roberts, and T. A. Turnbull to *Victory* for R.N.B.

Mr. J. H. Crawford, of Hove, has been appointed Admiralty Surgeon and Agent for Hove, and Mr. F. R. Law, of Morecambe, for Morecambe and Heysham.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Lts. G. H. Hart (proby.) to *Iron Duke;* and C. Seeley to *Drake*

Proby. Surg. Lt. W. J. Heely to be Surg. Lt.

ARMY MEDICAL SERVICES

Major-Gen. Viscount Dawson of Penn has been appointed Chairman of the Army Medical Advisory Board in succession to the late Lord Moynihan. The resulting vacancy in the membership of the Board has been filled by the appointment of Col. R. E. Kelly, C.B.

ARMY DENTAL CORPS

Short Service Commissions: S. A. Nicholson and S. J. Gittings to be Lts. (on prob.).

ROYAL ARMY MEDICAL CORPS

TERRITORIAL ARMY

Col. A. R. Laurie, from A.D.M.S., 46th (N. Mid.) Div., is attd. to the 2nd Anti-Aircraft Div. for duty as A.D.M.S.

G. M. Lewis (late Maj. R.A.M.C., T.A.) to be Maj.

Supernumerary for Service with O.T.C.: Lt. G. E. Gray (Empld. Queen's Univ. Belfast, Contgt. (Med. unit), Sen. Div., O.T.C.), to be Capt.

ROYAL AIR FORCE

Wing Comdr. D. G. Boddie to Directorate Medical Services, Air Ministry, for Staff duties.

Squadron Leader T. W. Wilson to Aeroplane and Armament Experimental Establishment, Martlesham Heath, for duty as Medical Officer.

Flight Lt. O. S. M. Williams to R.A.F. Station, Cardington.

The undermentioned Flying Officers are promoted to the rank of Flight Lt.:—

D. J. Sheehan, W. J. L. Dean, H. D. Conway, and I. K. Mackenzie.

Flying Offr. S. G. Gordon to R.A.F. Station, Farnborough.

AUXILIARY AIR FORCE

No. 601 (County of London) (Fighter) Squadron: Flying Offr. J. H. Williams is promoted to the rank of Flight Lt.

INDIAN MEDICAL SERVICE

Indian Medical Department.—Maj. (Sen. Asst. Surg.) P. Bell, retires.

DEATHS IN THE SERVICES

Lieut.-Col. JOHN KENNEDY GAUNT, R.A.M.C., who died on Dec. 12th at Meerut, India, as the result of an accident, was the eldest son of Dr. John Penn Gaunt, of Alvechurch, Birmingham. He qualified in medicine at Birmingham in 1907, where he held a series of junior appointments at the General Hospital before he joined the R.A.M.C. In 1914 he was stationed at Scutari and he became Lieut.-Colonel in 1934 at Ferozepore. He was the joint author of an article on a new improvised method of treating fractures in the field (*R.A.M.C. Journal*, 1911).

OBITUARY

SIR JOHN BLAND-SUTTON, BT., F.R.C.S., D.Sc., LL.D.

CONSULTING SURGEON TO THE MIDDLESEX HOSPITAL; LATE PRESIDENT, ROYAL COLLEGE OF SURGEONS OF ENGLAND

WE regret to record the death of Sir John Bland-Sutton, famous as surgeon, anatomist, pathologist, and anthropologist, which occurred on Dec. 20th at his London house, in the 82nd year of his age. He had been in a delicate state of health for several years.

John Bland-Sutton was born in Enfield in 1855. His father was a field naturalist, a clever stuffer of beasts, birds, and fishes, and a considerable amateur doctor, stitching up wounds, charming away warts, and extracting teeth. His mother was the daughter of a Northamptonshire farmer who made a failure of life and left his widow much dependent upon her family, also farming in Northamptonshire. John was the eldest son and second child in a family of nine, and spent his childhood in Enfield—then a completely rural district. He was educated locally, but from a charming and rambling series of autobiographical notes, entitled "The Story of a Surgeon," we can see that he was from childhood an unwearying self-instructor, a bent to his studies being given by his father's activities. Seeing that throughout his life Bland-Sutton's hero was John Hunter, it is interesting to note the many points of similarity between their two childhoods. Both spent their days rambling about the countryside observing the habits of beast, bird, and insect life, until to both, when children, all the ordinary problems of physiology in relation to habits, growth, and mating were an open book. The family was a severely religious one. Sunday observance was strict, regular attendance at Church compulsory, and the reading of novels was banned. But the boy was an omnivorous reader of books of geography and travel, knew the Bible, especially the Old Testament thoroughly, reading it with avidity from the point of view of history, while he mastered such groundwork of science as was to be found in elementary text-books of anatomy, physiology, and botany.

[Photograph by Elliott and Fry

In 1878 Bland-Sutton commenced his medical studies, being admitted as a student to the medical school of the Middlesex Hospital, when he counted out his fee as a perpetual student in separate sovereigns which he had earned or borrowed. He joined the anatomy school of Thomas Cooke, a successful and popular teacher who had facilities for supplying subjects for dissection to his classes, and at the school Cooke detected in him his high promise. He offered to keep him as pupil-teacher with a stipend, but Bland-Sutton had the sense to see that he ought to concentrate on his hospital training. So Cooke gave him a special letter of introduction to Henry Morris, then lecturer on anatomy at the
Middlesex Hospital, and Morris shortly afte
appointed him to be a demonstrator unde
with a stipend. The hospital had a strong sta
Bland-Sutton had the valuable experience of d
for Whitaker Hulke, surgeon, and also fam
palæologist. Hulke noting that his dresser
demonstrator in anatomy, impressed on hi
importance of being able to make on a blac
rapid and lucid diagrams for the use of st
and characteristically Bland-Sutton took to ob
the methods employed with coloured cha
pavement artists. In 1882 Bland-Sutton to
English double diplomas, passing also the p
examination for the F.R.C.S., when he had the u
experience of sitting for the examination wi
students to whom he was acting as demons
He took the fellowship in 1884, in which year he s
the Murchison schol
and in 1886 was
assistant surgeon
Middlesex Hospit
curious gap in his
will be noted in t
never held a house a
ment, the reason
that at the period at
this would have be
natural step in his
he became assi
curator and later
of the museum. He
the appointment a
nating one, and the
which he drew from e
tive inspection of the
mens under his ca
reinforced by co
visits to the Hu
museum, and by
sions into comp
anatomy at the Zoo
Gardens, Regent's
where he was app
prosector. He at
regularly the sci
meetings of the Zoo
Society, making a special study of the anato
the mammalian reproductive organs.

Thus equipped, Bland-Sutton was quick in n
a mark as a lecturer, bringing together in h
courses the knowledge of structure, natura
morbid, derived from insatiable work and rein
by the wide reading upon which he now emb
During the years between 1886–90 he
thrice an official lecturer at the College of Sur
delivering the Erasmus Wilson lectures twic
a course of lectures as Hunterian professor.
lectures were published in these columns, and
all concerned with the evolution of patholo
relation to normal structure and developmen
1892 he won the Jacksonian prize of the Colle
an essay on the diseases of the ovaries and u
appendages, and shortly after he was elected s
to the Chelsea Hospital for Women. It was
during six years' tenure of this post, that he dev
a wonderful dexterity in abdominal oper
He was at this time only assistant surgeon a
Middlesex Hospital, a position in which he rem
for the unusual period of 13 years. But what
have been an arrest in his career turned out to

for it happened that the Middlesex Hospital staff was in some way over-manned, with that Bland-Sutton by arrangement took series of years the position of full surgeon long vacation. Thus he had an exceptional every year with regard to beds, while later free year after year to take holidays abroad. first instance he visited many continental but later he became a great globe-trotter. He e fifty voyages while attached in active or capacity to the Middlesex, in ships of all visiting various ports of the Eastern and n Hemispheres. Wherever he went he col- xperiences, and some of these will be found lume entitled "Selected Letters and Essays" e published in 1920. His observations on such nt things as "Emergency Surgery at Sea" e "Science of the Bull Ring" make amusing g; others are more serious in bent, but behind observation the author thought worth setting there lay some scientific reason.

1905 he became full surgeon, and in 1914 he his magnificent gift of the Pathological Insti- e the Middlesex school. The necessity for new ories to meet coming requirements was so him that he spoke to Lord Athlone, chairman hospital, about the desirability of pulling he old museum where he had done so much and erecting a pathological institute in its The idea was adopted and for the cost of titute—known now under his name—he made entirely responsible, thus probably consti- himself the greatest individual donor that any ng hospital has ever had.

was now at the zenith of his career, and alike spital and private practice was proving his to his reputation. In his operative procedure as bold but always purposeful, and his tech- with regard to tumours justified itself by results. No other branch of surgery ever the same appeal to him as the surgical treat- of women's diseases. He wrote on the subject various aspects with unceasing interest for a r of a century, and in numerous orations and es, certain of which he published in volume he displayed his familiarity with the whole logy. He wrote or lectured on the treatment rine myomata, the complications of pregnancy gh tumours, the after-effects of operations on emale pelvic organs, and on malignant disease ny of its clinical aspects, but especially those the diseases of women were concerned. His on ligaments appeared in 1887, that on diseases e ovaries and Fallopian tubes in 1891, five before he was appointed surgeon to the Chelsea ital for Women; and his book on gall-stones 07; he had supplied the section on human logy to Morris's Anatomy in 1893, in which ame his greatest book "Pathology of Tumours"; remained authoritative for thirty years, and t edition in 1922 he refused to revise, leaving record of the state of knowledge at that date.

nd-Sutton served during the war as lieutenant- el, R.A.M.C. (T.), in the first instance attached to hird London General Hospital. Later he sat special medical board which acted as an appeal nal for men who considered themselves unfit ilitary service, and later he became War Office entative with the special duty of collecting mens illustrating gunshot injuries. Many of ases which were coming over in abundance ed such demonstration if the mutilations and the efforts to repair them were to serve future observers The collection was finally entrusted to the Royal College of Surgeons on the same terms as the Hunterian collection, and in the *British Journal of Surgery* Bland-Sutton wrote an interesting account of it, in which will be found notes on some of the vagaries of bullets and the routes by which they found their way into extraordinary places.

He will live in memory as a great servant of the Royal College of Surgeons of England. He was elected to the Council in 1910, and was a stimulating and unwearying member of its deliberations. He became president in 1923, being by this time consultant surgeon at the Middlesex Hospital, and in this year delivered his Hunterian oration in which the affairs, habits, and opinions of Hunter were described in elaborate and diverting detail, when it became clear how intimately the orator had been influenced in his own life by the life of Hunter. He went over the ground traversed by Hunter when in charge of a hospital in Portugal in the closing phases of the Seven Years War, identified the site of the hospital, and was able to satisfy himself of the extensive opportunities offered by the plateau on which it had stood for first-hand observations on natural history. The principal guest at the dinner following the oration was Rudyard Kipling, between whom and Bland-Sutton there was an intimate friendship.

In private life Bland-Sutton, through his generous gregariousness and the gift of his wife and himself for hospitality, was probably better known than any surgeon in London has ever been. His beautiful dining-room was the scene of recurring reunions in Brook-street, and the pleasure derived will long be remembered by an extensive circle of friends in the medical world, and indeed in all classes of society, especially legal and artistic. The scene of these gatherings was a reproduction of a Persian court, the idea of adding such an oriental hall to a London house having struck him suddenly while travelling in Egypt on one of his numerous tours, and the dream materialised regardless of expense, and with complete æsthetic success.

Academic and official distinctions fell in number upon him. He was at different times president of the Association of Surgeons of Great Britain and Ireland, of the International Conference on Cancer, of the Royal Society of Medicine, and of the Medical Society of London. Knighted in 1912, he was created a baronet in 1925. He was a LL.D. of five British universities, and held honorary degrees in France, Canada, and the United States. It fell to him to speak on many public occasions, either from the presidential position or as an advocate of important movements or in acknowledgment of personal honours. He discharged the duty in an individual manner. He used a vocabulary mainly from the Old Testament, interspersed with much Biblical quotation. He was simple in phrase when most serious in object or shrewd in judgment, and he was delightfully unconventional in the biological allusions which he loved to use in proof of argument.

Sir John Bland-Sutton married Edith, daughter of the late Mr. Henry Heather-Bigg, the orthopædic surgeon, and their mutual devotion was known to all their friends. There were no children of the marriage.

A funeral service prior to cremation was held in the Middlesex Hospital Chapel to the adornment of which he had made frequent and generous donations. This will be followed next week by a memorial service in Westminster Abbey.

SIR JOHN ROBERTSON, C.M.G., M.D., LL.D.

SIR JOHN ROBERTSON

[Photograph by Whitlock

WITH the death of Sir John Robertson on Dec. 16th at the age of 74 years, Birmingham loses a great public servant and the health service one of its pioneers. Born at Warminster, Wilts, he was educated at Edinburgh, where he passed on from Watson's College to the University, gaining distinction at each stage of his study. In 1887 he took the M.D. with honours, submitting as his thesis a study of the conditions which govern the causation and distribution of consumption in England and Wales. For the next few years he assisted in several large general practices, finding time in the intervals to travel abroad and study public health methods there. He took the B.Sc. Edin. in public health, later being appointed examiner for this degree. In his thirtieth year he had his first appointment as medical officer of health—for the county borough of St. Helens—and during six years he built up there a lively sanitary administration which included an inquiry into the causes of endemic typhoid fever and the best means of combating diphtheria. Being also public analyst he was able to organise bacteriological work in a municipal laboratory, and was perhaps the first to do this. After St. Helens he spent another six years at Sheffield as health officer, occupying also the chair of public health in the University. It was during this period that Sheffield obtained the first local Act making compulsory the notification of tuberculosis, and his name was associated with a growing campaign to reduce infant mortality. In his early forties Robertson was called to fill the vacancy in Birmingham left by the retirement of Alfred Hill. Birmingham was then beginning to extend its boundaries and he availed himself of the remarkable facilities offered for broad measures of public health, especially in relation to tuberculosis and infant mortality. In these early days he was interested in town planning and made himself familiar with domestic needs and problems as well as with matters of material and building work. Every demand for better houses found in him a warm advocate, and it was his voice that was heard in securing for the artisan's family an abode in which were found the cupboards, the bath, the oven, and even a place for the pram which are now almost the commonplace of social endeavour. He was equally active in his survey of the handling and distribution of milk. Averse from any idea of establishing a municipal milk-supply he aimed at enlightening the public and getting them to insist themselves on cleanly production, care in transport, universal pasteurisation, and distribution in bottles. He was in very large measure the people's officer aiming at improving the conditions of town life with their coöperation rather than by pressu
outside.

In 1914 Robertson was appointed specialist
on health problems in the field, and after the
served on many of the national committees
with problems of civil life. He was a
of the consultative council of the Ministry of
and sat on the Departmental Cancer Con
In 1916 he was chosen president of the So
Medical Officers of Health. His service
rewarded in 1918 with the C.M.G., and in 19
a knighthood. Retiring from public office i
he remained an active citizen, serving on
departmental and other committees. In 1892
married Jane Alexina, fourth daughter of
Sloane, J.P., of Edinburgh, who survives hi
two daughters.

Dr. H. P. Newsholme writes: "The sudde
of Sir John Robertson at the end of a long
public service will come as a shock to ma
knew his ever continuing freshness of mi
unusual energy of body. His death will be
loss, both to the public health service as a wh
to the many social services of the city which
home of his adoption. Behind his wide kn
of public health and of men acquired in thr
centres of population lay an enthusiasm
vigorous driving power which made him a
in many aspects of practical reform, part
in relation to tuberculosis, housing, and ma
and child welfare. His notable public spi
social interest led him to take a most res
part in the work of organisations concerned w
promotion of the public health.

"While his name is gratefully rememb
St. Helens and in Sheffield, Sir John Ro
identified himself mainly with Birmingham,
he spent nearly 25 of the mature years of his
health service, followed by some nine years of
as active a retirement. By his single-minded
and devotion to the tasks of medical officer of
as well as to those of the professorship in public
at the University of Birmingham, he establis
closest contact with prominent spheres of
work in the city; by his grasp of public affa
his determination to get things done he w
enduring respect and admiration of the city c
by his technical knowledge and his kindly hu
he gained the interest and affection of the st
who attended his lectures; while in his daily
with members of the large staff of the public
department he was ever regarded as a fair-m
chief, a phenomenal worker and a generous
under whom they were proud to serve. Th
included a number of most responsible he
departments whose appointment was a mark
own acumen and insight in putting the right
woman into the right place. Only a fortnight
his death he was a guest of honour at the
staff gathering of the department and receiv
affectionate and enthusiastic greetings of all.

"Birmingham's maternity and child welfare
is often regarded as, in many respects, a mo
what such service should be. *It owes its inc*
scope, and spirit primarily to the enthusias
energy with which it was conceived in his min
brought to fruition by his persistence. A
remark would apply to tuberculosis and a n
of other public health services within the cit

"Sir John Robertson's death removes fro
field of public health and of local civic aff
strong personality with wide interests and

outlook, a virile and practical mind,
for social justice towards the less
life. Such men are ill to be spared, but,
leave a green memory behind."

URTENAY LORD, M.R.C.S. Eng.

ASSISTANT MEDICAL SECRETARY, B.M.A.

ay Lord, who died on Dec. 8th, was a
medical organiser and a great servant
h Medical Association, in connexion
worked closely and officially for twenty
graduated in honours at Cambridge in
Sciences Tripos, and carried out his
at Birmingham, qualifying in 1897
joint diploma. He filled the appoint-
e surgeon at the Queen's Hospital,
and of resident medical assistant at the
General Hospital, and for three years
l practice at Gillingham, acting during
period as physician to out-patients at
ew's Hospital, Rochester.
began his long and intimate connexion
M.A. He came into prominence as a
opponent to taking service under the
Act, but when the struggle settled
appointed assistant medical secretary
iation. Immediately afterwards he
commission in the R.A.M.C., and his
gained at first hand gave him special
e fighting services, and familiarised him
s and conditions of employment therein.
ge he made a fine use in advising the
generally; he acted for several years as
the Naval and Military Committee of the
while numerous individual medical men
ntemplating joining one or other of the
the fighting services consulted him.
o took great interest in the work of the
, and Dr. J. W. Bone has recorded the
acted as a supernumerary surgeon on a
on purpose to try out the case-taking
had been drawn up as part of a scheme
an international sea code. When this
n occasions, seeking information from the
found in Courtenay Lord one whose
wise and courtesy outstanding, and we
s colleagues of the Association in regret

LOAG LAWSON, M.B. Liverp., D.P.H.

t Lawson, who died recently at his house
ll, had for a long time a large practice
Bridge, where he succeeded his father as
er for the rural district. He received his
cation at Trinity College, Dublin, and at
ity of Liverpool. He graduated in the
e at Victoria University, Manchester,
the Liverpool degrees and the D.P.H. of
oyal Colleges. He held the appointment
hysician to Liverpool Royal Infirmary,
stant surgeon to the Northern Dispensary,
after which he took over his father's
l appointments. He practised at Hebden
ten years, and became a well-known
locality, particularly as he continued for
d to cover his large rural area on horse-
was factory surgeon for the district, and
n interest in the St. John Ambulance
His death was very sudden for he
n the footway and died in the ambulance
to the hospital.

THE LATE PROFESSOR KETTLE

We have been asked by friends of the late Dr. E. H. Kettle to print in THE LANCET the following tributes to him which appeared in the *Times* of Dec. 4th.

PROFESSOR KETTLE: A RARE PERSONALITY

The Pathological Staff of the British Postgraduate Medical School write:—

"Prof. Kettle had rare qualities apart from his gifts as a pathologist. He will be remembered by the world for his work on silicosis and malignancy, but those who came in contact with him, especially in his last years, know of his other great contribution to medicine. Watching his daily reactions to the problems of a new teaching school one could not fail to learn something of what he was striving to achieve. He knew that no school could live and contribute to the community unless it sheltered men who were not only teachers and students, but above all searchers after new knowledge. He had a wide vision of the future developments of medical science, and on the larger stage of university education his outlook was as comprehensive and wise as it was in the smaller range of his own field.

"Many men have administered a large department so that it runs smoothly. Many men have trained a body of disciples. Kettle had a greater power; he brought together people of widely different interests working on varied lines, far off his own field of investigation; yet through him and his power of creating affectionate confidence a real unity was reached. It was a commonplace, on solving a tricky problem or finding an interesting specimen, or hearing a good story, to go immediately in search of Kettle, sure of his genuine pleasure. He disliked sentimentality and pretentiousness; he would have shrunk from the description of himself as a man of vision. He was intolerant only of shoddy thinking, and had a devastating gift of summing-up a school of thought in a phrase that instantly deflated it. He suffered fools politely, but never gladly.

"He was fun to work with, because he enjoyed the excitement of the chase, he enjoyed the day-to-day comedies of life, he enjoyed the good things of the world, and made the best of the bad with a wry sort of humour that was his own. There are few in his position who had less of the great man in their manner but more of greatness in the way they worked and lived. His work will live after him in his own contributions to pathology, and in the lives and output of those men and women he started on their way. They learnt from him a good deal of pathology, a good deal of kindly wisdom, and much of the value of friendship, and of the power of a man's courage."

"A Friend" writes:—

"Grateful as they are for your fine tribute to the scientific achievements of E. H. Kettle, the friends who met him in other fields will want to add their witness to his shining example of courage in the face of physical disadvantage. From his boyhood up he was never really fit for the day's work or play as other men are fit. Asking for no indulgence, surrendering to no self-pity, he drew level in his own stout-hearted way. In particular, the golf links offered a battlefield where the handicap of physique could be neutralised. Here, in spite of his disabled leg, he more than held his own with his fellows. Striding off from the first tee at Lossiemouth or

Denham 'Tom' Kettle was gaily ready for the full rigour of the game. An ideal foursome partner, seldom far from the middle of the fairway, he was cheerfully philosophic in adversity and charmingly apologetic in triumph. This year a disastrous and unexpected sequel to a serious operation, otherwise successful, deprived him of the grip of his left hand. He was out again, nevertheless, on the links in October, defying this fresh misfortune and encouraging the hope of that fresh victory which is now fin denied him. You have done justice to his emin in research, his ability in organisation, and inspiration as a teacher. Beside all these qualitie public service he will be remembered privately a man of essentially brave spirit and well-balan mind, quietly helpful in counsel, warmly sympath towards all victims of unfairness, and lovably k to his friends."

PANEL AND CONTRACT PRACTICE

A Hard Case

LAST April a young woman was treated by Dr. X, an insurance practitioner, on a provisional diagnosis of nervous debility and anæmia. She was difficult and often intractable. On one occasion she was lying on the bed and would make no effort to sit up, and the practitioner pulled her up into a sitting position. He remained of opinion that her illness was hysterical in nature, and he advised the relatives to get her out in the open air. He also had some conversation with her fiance about her childish behaviour. Further visits were paid and after a fortnight the patient's condition had improved sufficiently for her to attend at the surgery, which she did on three occasions, the last a fortnight later by which time she was walking without assistance. A week after this the patient's mother called at the surgery and obtained a certificate of incapacity, although Dr. X had not seen the girl on that date. Some discussion took place about the desirability of the girl attending at a hospital for nervous diseases, and on May 6th Dr. X gave a letter of introduction. The next day the mother started to take the girl to hospital but just after leaving home she fell down in the street. She was, however, taken by ambulance to the hospital where she was examined and sent home again by ambulance. On Friday, May 8th, the girl's married sister went to Dr. X's surgery, reported these incidents, and understood that Dr. X would visit on the following Tuesday, May 12th. Dr. X had intended to call on May 9th, but omitted to note the visit and did not go. On the evening of May 12th the girl's father called on Dr. X, and after a somewhat heated interview Dr. X visited the patient that evening and again on May 13th. She then had a rapid pulse, a systolic murmur over the heart, pain in the left side of her chest, and her mental condition was bad. She was violent and resented attempts at examination. Dr. X discussed with the relatives the desirability of getting a second opinion, and he telephoned to Dr. Y, whose name had been suggested, on behalf of the relatives. On May 17th Dr. Y formed the opinion that the girl was suffering from acute mania and arranged for her removal to hospital for observation. Death took place on May 18th and there was an inquest, the verdict being that death was caused by mitral stenosis, pulmonary œdema, toxæmia, and heart failure.

The girl's father complained that Dr. X's manner had been unnecessarily rough and that he had failed to diagnose the cause of the illness. Dr. X said that at first he was unable to find anything physically wrong and accordingly treated the case as one of hysteria. So far back as April 9th he had tried at four hospitals to secure a bed but could only obtain a promise of admission to an observation ward which he did not think was proper to her then condition. He submitted a letter from the medical superintendent of the hospital to which the girl was taken on May suggesting that the case was most likely hysteri although there was the possibility of an organic b The girl had been placed on the waiting-list, a r sedative to be given in the meantime. When exami at the hospital on May 7th nothing abnormal discovered in heart or lungs. Dr. X received fr the pathologist who conducted the post-mor examination a communication which left him doubt what was the actual cause of death.

The medical service subcommittee accepted fact that Dr. X diagnosed hysteria and treated patient accordingly. Feeling that sympathy m tend to accentuate the hysterical condition his man may have been brusque. In regard to two incid however the committee took the view that the te of service were broken. He knew on May 8th t the girl had fallen in the street and had been ta to and from the hospital in an ambulance, and had told them he intended to visit her at home the following day but forgot to note the visit did not go. And on May 5th he had issued a ce ficate of incapacity without having seen the pati This Dr. X frankly admitted; he had intended visit the girl on the same day and omitted to do The committee nevertheless recommended the Minis to impose a fine of £5, the medical members diss ing in view of the obscure nature of the illness the explanations submitted by Dr. X.

At the insurance committee a similar appeal made by the medical members but without av The pity is that the relatives when they receive report may think Dr. X is being punished for m handling the case, whereas the breach of the ter of service arose partly from the issue of a certificat of which they did not complain—and partly from non-visitation of the patient on another day wh no one but Dr. X himself knew that he intended visit.

BRISTOL'S HOSPITALS.—Proposals are being exa ined by experts for the coördination of the work the Royal Infirmary, the General Hospital, and Eye Hospital of this city. Each hospital would th specialise in the type of case with which it m principally deals—the Royal Infirmary in fractures a surgical work and the General Hospital in med cases.

STRATFORD-ON-AVON HOSPITAL.—In spite of larger number of both in-patients and out-patie the expenditure of this hospital has only increased about £30, its income being about £300 short expenditure. In the last few years there has been complete change in the hospital's main source of incon Whereas it used to come from donations, subscriptio and church collections, it now comes from maintena fund contributions and patients' payments. It is thou that the accommodation for paying patients should extended.

PUBLIC HEALTH

An Interesting Liaison

1931 there has been in operation in Coventry
resting scheme of industrial medicine. Three
earlier the Coventry and District Engineering
yers' Association had initiated a system of
safety officers for the larger motor, aircraft, and
engineering firms in a concerted attempt to keep
accidents, the safety officers being employed by
ividual firms. Recognising in this safety system
trument for the application of general health
res in the factories concerned, Dr. A. Massey,
dual capacity of medical officer of health and
nedical adviser to the Association, proposed to
the Association and its safety officers on the one
and the city public health department on the
The safety officers, in addition to their
l rôle, have become his public health mis-
es in the factories, the scheme having proved
ticular value in health education and propa-
The liaison has also given scope for experi-
l work. Seasonal experiments in the prevention
common cold and influenza have been con-
in the form of a daily administration of
n concentrate to groups of employees. In
a different field, large-scale experimental work
it in hand by a large aircraft firm, in coöpera-
ith the medical officer of health, with the
of mitigating the propagation of noise from
ngine-testing sheds. The solution of this
ing problem required expert coöperation both
gineering and physics. The difficulty was
sfully met by muffling the exhausts, sound-
g the testing sheds, and the use of sound-
ent screens and tunnels. This was an important
ement, for the comfort of many persons
t in the large centres of the aircraft industry
ependent upon the suppression of excessive
This liaison between the health department
ocal industry is surely worthy of imitation
ere.

Mechanisation and Office Workers

a conference held at the Millicent Fawcett
n Dec. 17th to discuss mechanisation in offices
ffects office workers, satisfaction was expressed
prospect of discussing a new departure in
ry instead of allowing a new system to grow up
zard. The idea of bright girls from secondary
s setting out on this work with the risk that
might find themselves tied down to it as a
e occupation created feelings of resentment
ny speakers. Opinions were divided as to
er repetitive work of this kind is itself injurious,
nere was unanimity on resolutions calling for
ate provision for the comfort of the worker, for
nt which should reach a rate at which the
r can be fully self-supporting, and for oppor-
s for promotion to higher posts. Employers,
union officials, and educationists joined in this
sion, and it was obvious that the great changes
aking place in industry must not be allowed to
p in the way that marked the earlier evolution
ustrial conditions. The full-time employment
dical officers by large firms makes this subject
erest to the medical man, especially in view
influence of working conditions upon sickness
eeism due not so much to physical illness as
ditions brought into being by maladjustment
ssatisfaction.

Cerebro-spinal Fever at Halifax

A case of cerebro-spinal fever was reported at the military barracks at Halifax on Dec. 13th. It was a soldier, 18 years old, who died in the isolation hospital two days later. The clinical picture was typical—severe headache, vomiting, pyrexia, stiffness of the neck, and Kernig's sign. Examination of the cerebrospinal fluid showed polymorphonuclear leucocytes containing meningococci. Treatment included repeated lumbar puncture and the intrathecal administration of antimeningococcal serum. In order to detect contacts immediate inoculation of culture plates at blood heat was employed; the results were negative. Contacts were however excluded from the general public for a week. In the search for a cause the possible factors of overcrowding, bad ventilation, and fatigue were looked into, but nothing significant was discovered. Another young soldier was admitted to the isolation hospital for observation and special examination but the suspicion was not confirmed. No further case has arisen.

Scarlet Fever at Doncaster

Up to Dec. 21st 152 cases of scarlet fever had been reported at Doncaster. The infection having been traced to a particular milk-supply, arrangements were made for all the milk coming from this source to be pasteurised before delivery. It is believed that the great majority of the primary cases have been accounted for, and that the number of fresh cases will now decline.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED DEC. 12TH, 1936

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 5 (Oldham); scarlet fever, 1906; diphtheria, 1283; enteric fever, 27; pneumonia (primary or influenzal), 851; puerperal fever, 34; puerperal pyrexia, 97; cerebro-spinal fever, 17; acute poliomyelitis, 12; encephalitis lethargica, 5; dysentery, 36; ophthalmia neonatorum, 84. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Dec. 18th was 3220, which included: Scarlet fever, 1047; diphtheria, 1055; measles, 9; whooping-cough, 368; puerperal fever, 15 mothers (plus 8 babies); encephalitis lethargica, 284; poliomyelitis, 4. At St. Margaret's Hospital there were 13 babies (plus 5 mothers) with ophthalmia neonatorum.

Deaths.—In 122 great towns, including London, there was no death from small-pox, 2 (0) from enteric fever, 2 (0) from measles, 7 (1) from scarlet fever, 7 (0) from whooping-cough, 43 (3) from diphtheria, 44 (14) from diarrhœa and enteritis under two years, and 54 (11) from influenza. The figures in parentheses are those for London itself.

Both the deaths from enteric fever occurred at Thurrock (U.D.). Fatal cases of diphtheria were reported from 27 great towns, Hull 5, Luton, Liverpool and Manchester each 3.

The number of stillbirths notified during the week was 279 (corresponding to a rate of 47 per 1000 total births), including 45 in London.

SEWAGE DISPOSAL IN GREATER WORTHING.—A scheme for carrying off the sewage of an area of 5000 acres in Greater Worthing has just been completed at a cost of £113,000. It was begun in 1929 when the rapidly developing parishes of Durrington and Goring became part of the town.

PARLIAMENTARY INTELLIGENCE

The Christmas Adjournment

THE House of Lords adjourned for the Christmas recess on Friday, Dec. 18th, until Jan. 26th. The House of Commons adjourned on the same day until Jan. 19th.

QUESTION TIME

WEDNESDAY, DEC. 16TH

Medical Examination of Air Force Recruits

Mr. DAY asked the Under-Secretary of State for Air whether, seeing that there were 52,245 definite applications for enlistment in the Royal Air Force for the year ended 31st March, 1936, and that during this period only 18,889 were medically examined, when it was proposed to examine and/or reject the balance of these entrants.—Sir P. SASSOON replied: Of the 52,245 applications for enlistment in the Royal Air Force in the year ended March 31st, 1936, about 23,000 were rejected on various grounds of unsuitability or were not pursued by the applicants. The remaining applicants were medically examined and 18,889 found physically fit.

British Red Cross and Spanish War

Miss RATHBONE asked the Secretary of State for Foreign Affairs whether he was aware that the British Red Cross had sent no medical or nursing personnel to either side in Spain, and had not recognised the status of those medical units which had been sent by voluntary efforts; and whether, in view of His Majesty's Government's declared intention to promote humanitarian efforts for the relief of suffering in the Spanish dispute, he would do all in his power to secure for these units the status of Red Cross workers.—Mr. EDEN replied: I am aware that the British Red Cross has sent no medical or nursing personnel to either side in Spain and has not recognised the status of those medical units which have been sent by voluntary efforts. The question of approaching the opposing forces with a view to persuading them to apply the provisions of the Convention in relation to the protection of Red Cross units is under consideration.

Miss WILKINSON: May I ask the right hon. gentleman whether the British Red Cross asked the advice of H.M. Government and whether they have acted in accordance with the advice given?

Mr. EDEN: No. I think this is really what happened. The position is that the Geneva Red Cross Convention, 1929, does not apply to the civil war in Spain and that is the legal position. I hope that it will be able to deal with the matter in the manner suggested. I am quite sure that we have not dissuaded any body from taking action. Naturally we wish to take all the action and to give all the humanitarian help we can in the interests of all concerned.

Motorists and the Driving Test

Mr. WALTER GREEN asked the Minister of Transport the number of motorists submitting themselves for driving tests during the six months to the last convenient date; the percentages of that number failing to pass the first, second, and third tests; and if he was satisfied that there was a reasonable uniformity in the character of the tests imposed.—Captain A. HUDSON, Parliamentary Secretary to the Ministry of Transport, replied: From May 30th to Nov. 28th, 1936, 194,488 candidates submitted themselves for driving tests. Of these 28·46 per cent. failed. Candidates were not required to disclose how many times they might have been tested previously, and no information is available as to the number of persons who submitted themselves for a second or third time. From the outset steps have been taken to secure reasonable uniformity in the character of the tests conducted by the various driving examiners, and I think that, generally speaking, it has been achieved.

Road Accidents

Mr. WATKINS asked the Minister of Transport the number of people killed and injured in road accidents since
January, 1931.—Captain HUDSON replied: Since Jan
1931, 40,350 people have been killed and 1,290,000 in
in road accidents.

THURSDAY, DEC. 17TH

Medical Services at Juvenile Centres

Miss WARD asked the Minister of Labour how
local authorities in the special areas had provide
medical services for juveniles attending authorised co
and what financial assistance was given by the Go
ment in order that the service might be adequa
Mr. ERNEST BROWN replied: Eleven education auth
conducting authorised courses of instruction in the s
areas of England and Wales and Scotland are u
stood to have made arrangements to a varying exten
the provision of medical services for juveniles atte
such courses. The standard rate of grant on this s
is 75 per cent., but where certain conditions are fu
this rate of grant may be raised to 100 per cent. c
approved additional expenditure.

Miss WARD asked the Minister of Labour wheth
would consider establishing a medical centre in conn
with the Government training centres.—Mr. E
BROWN replied: The facilities at the local training c
which are being set up in the special areas in En
and Wales will include the provision of medical, d
and optical treatment for men who cannot at prese
admitted to the Ministry's centres owing to minor ph
disabilities.

Silicosis and Asbestosis Certification

Mr. CASSELLS asked the Home Secretary if he
inquire into the case of the late Patrick Conwa
400, Moffat-street, Glasgow, E.5, whose widow appli
the medical board for silicosis and asbestosis for a
fication to the effect that Mr. Conway died from sili
and if he was aware that the board demanded pay
from the widow of the statutory charge of £2 2*s*., a
receipt of it wrote to her on Nov. 17th, 1936, t
certificate was not to be granted, even though *no*
mortem examination of the deceased was made.
JOHN SIMON replied: I understand that Conway di
July 12th, but that notwithstanding a previous wa
to the family no post-mortem examination was arr
for and the board were not informed until the e
the month, when the body had been buried and the
no authority to interfere with it. They thereupon info
the widow that they would be unable to issue a certi
without such an examination. Subsequently her sol
asked them to decide that no post-mortem was nece
but after a careful review of the evidence before t
they were unable to certify that the death was caus
the disease, and so informed him. The fee has
refunded.

Civilian Gas Respirators

Mr. DE CHAIR asked the Home Secretary if the
masks to be supplied to the civilian population i
event of war guaranteed immunity against c
monoxide and highly dispersed arsenical smokes, re
tively.—Mr. GEOFFREY LLOYD, Under-Secretary, I
Office, replied: The civilian respirator protects ag
highly dispersed arsenical smokes. It does not pr
against carbon monoxide, but I am advised that c
monoxide could not be used as a war gas.

Doctors and Male Servant Licence

Mr. SUTCLIFFE asked the Chancellor of the Exch
whether he was aware that cases had arisen where a d
was compelled to take out a male servant licence fo
chauffeur, while at the same time the chauffeur was
pulsorily insurable in respect of unemployment;
whether he would consider taking steps to put an e
this anomaly.—Lieut.-Colonel COLVILLE, Financial S
tary to the Treasury, replied: While I am aware
cases of this kind exist, I cannot accept my hon. fri
contention that they are anomalous. The whole que
of the male servant licence duty is under examinatio

(Continued at foot of next page)